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EPITOME

OF THE

NATURAL HISTORY

OF THE

INSECTS OF CHINA:

COMPRISING

FIGURES AND DESCRIPTIONS

OF

UPWARDS OF ONE HUNDRED NEW, SINGULAR, AND BEAUTIFUL SPECIES; TOGETHER WITH SOME THAT ARE OF IMPORTANCE IN MEDICINE, DOMESTIC ECONOMY, &c.

THE FIGURES

ARE ACCURATELY DRAWN, ENGRAVED, AND COLOURED, FROM SPECIMENS OF THE INSECTS;

THE DESCRIPTIONS

ARE ARRANGED ACCORDING TO THE SYSTEM OF LINNÆUS; WITH REFERENCES TO THE WRITINGS OF FABRICIUS, AND OTHER SYSTEMATIC AUTHORS.

By E. DONOVAN,

AUTHOR OF THE NATURAL HISTORY OF BRITISH INSECTS, &c.

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THE History, and Present State of China, as far as relates to its government, its sciences, and its arts, has long been considered worthy of the deepest research; and much information has been collected on these subjects, with considerable labour and expence, under the auspices of several of the most powerful courts in Europe. If the natural productions of that country have attracted less attention, it is only because their value and importance are less generally known; upon better acquaintance they would at once excite our astonishment, and convince us of their utility.

General readers are sometimes disposed to consider the Insect World as too minute and frivolous to deserve investigation. Let them remember, however, that to a foreign Insect the staple commodity of this kingdom is indebted for its richest dye; that from another we derive the most costly articles of dress, and splendid ornaments of luxury; and the utility of many others is apparent in various branches of medicine, the arts, and domestic economy.

Prompted by these reflections, the Author determined to submit to the Public a Series of Engravings illustrative of the Entomology of China.—But flattering as the prospect of encouragement to his project appeared, he would not presume to publish his Work till the result of the late Embassy of Earl Macartney to that country was fully known: of that the public are now in possession; and, though, in common with every friend to the commercial advantages and scientific inquiries of this country, the Author must regret its issue, it is perhaps, on the whole, more favourable to the present Publication than if the event had been different. If indeed a more general intercourse had been established between the two nations, and the language of China had been better understood, it is impossible to calculate the advantages which Entomology, amongst other sciences, might have derived; for the Chinese, like their neighbours the Japanese, are well acquainted with the natural productions of their empire, and Zoology and Botany, in particular, are favourite studies amongst them. To what degree of excellence they have arrived in their scientific researches we are not informed, but we must not affect to despise the instruction of a people amongst whom the most useful arts, and sciences, first dawned and acquired a high degree of perfection, when "Europe had scarcely a few savages scattered over her forests."

The few, but interesting hints, which Sir George Staunton has given on the practical Entomology of China, induces us to look forward to a period when some of the Insects, as well as Plants, of that vast empire may be no less objects of curiosity, than of national utility and importance; the Chinese Cochineal Insect[a], and that from which the wax of the east is procured,

[a] Dr. Anderson has found eight species of Cocci at Madras. One of these, he says, was found on a young citron-tree, Citrus Sinensis, just landed from China; it was more deeply intersected between the abdominal rings than any of those of the coast, and he names it therefore C. Diacopeis.—*Collection of Letters from Madras, Jan.* 28, 1788.—The Cactus Cochinilifer has lately been found by Mr. Kincaid, at Canton; its Chinese name is *Pau wang*.—This has been transmitted to the *Nopalry* of the Hon.

are two species that deserve particular attention. The medical precepts of the Chinese will certainly find few votaries in Europe, but as articles of medicine, amongst others, the Meloe Cichorei, which were the cantharides of the ancients, and are now used by the Chinese, may be of importance, as it possesses more virtues than the Meloe Vesicatorius used in our pharmacy: the Curculio regalis, Buprestis vittata, and many others, are also employed in articles of jewellery in the eastern parts of the world, and may vie with the richest gems in beauty and splendour.

These observations we presumed to offer on the Entomology of China, in submitting the Design of this undertaking to the public. We have solicitously endeavoured to gratify the curiosity and expectation such observations were calculated to excite, and trust not altogether unsuccessfully. On the economical purposes of the Chinese Insects we can offer little except conjectures; those may, however, assist the inquiries of future observers; and the general reader will not be disposed to regard it with less favour, if novelty and beauty supply the deficiency of useful information. It embraces, in one view, a variety of the most uncommon and brilliant species of that fertile region, portrayed in an elegant and faithful manner; and classically arranged according to the favourite system of *Linnæus*. Thus, whilst our Epitome of the Chinese Insects exhibits a splendid display of this beauteous race, it may insensibly lead to a comprehensive survey of the system itself; and, by conveying instruction in its most pleasing form, facilitate the study of this charming, but much neglected science.

From its commencement, the Author has been encouraged by the liberal attention of several persons, whose names would reflect honour on this undertaking, were he at liberty to mention them. He has already observed that his own collection includes several thousand specimens, collected by amateurs of the first celebrity[b]. To this he may add, that every other collection he was desirous of consulting, has been kindly open to his inspection; and every information communicated with a readiness that merits his warmest thanks. Amongst these, he cannot refrain noticing the valuable collection of Drawings and MSS before alluded to; the specimens of Insects collected in the journey of his Excellency Earl MACARTNEY, in the late embassy to China; and the very magnificent collections of Mr. FRANCILLON and Mr. DRURY, from both of whom he had unreserved permission to figure and describe whatever his own cabinet could not furnish. And, finally, he must own himself particularly indebted to the favours of the Right Hon. Sir J. BANKS, Bart. K.B. whose invaluable cabinet and library have afforded him every assistance in completing his design, and for which he begs leave to testify his most grateful acknowledgments.

East India Company, at Madras, and promises to be of future advantage to the commercial concerns of Great Britain. We have been unable to procure any of the Chinese Cochineal insects, and purposely omit that species which Sir G. Staunton has noticed, because it has no relation to the productions of China.

[b] *The late Duchess Dowager of Portland, —— Tunstall, Esq. Governor Holford, Smeethman, Ellis, Keate, Yeats, Forster, Baily, &c. &c.*

COLEOPTERA.



Scarabæus Midas. *Scarabæus nasicornis.*

——— cinctus. *——— sacer.*

——— Levi.

London. Published as the Act directs by E. Donovan. December 1.1798.

SCARABÆUS MIDAS.

SPECIFIC CHARACTER.

Without ſcutellum. Thorax armed with three horns: a horn on each ſide of the head.

SCARABÆUS MIDAS: exſcutellatus thorace tricorni, capitis, clypeo ſinuato bicorni. *Fab. Ent. Syſt. T.* 1. *p.* 45. 148.

The figure of this rare ſpecies is taken from a ſpecimen in the collection of Mr. Drury, of London, on aſſurance that it was received from China. Another, in the cabinet of Sir J. Banks, Bart. deſcribed by Fabricius, is noted from America.

The horns on the head of this inſect have a very uncommon appearance, and which authors have compared to a pair of ears. The ſpecific name Midas has been aptly given from this circumſtance.

SCARABÆUS BUCEPHALUS.

SPECIFIC CHARACTER.

Without ſcutellum. Thorax blunted in front, armed with four teeth or horns. Shield of the head angulated, furniſhed with a horn.

SCARABÆUS BUCEPHALUS: exſcutellatus thorace retuſo quadridentato, capitis clypeo angulato: cornu emarginato. *Fab. Ent. Syſt. T.* 1. *p.* 51. 166.

This ſpecies has been confounded with S. Moloſſus. Both inſects are given on the ſame plate, that the difference may be preciſely obſerved.

SCARABÆUS NASICORNIS.

GENERIC CHARACTER.

Antennæ terminate in a kind of club, divided longitudinally into laminæ. Second joint of the foremoſt pair of legs furniſhed with ſpines or teeth.

SPECIFIC CHARACTER.

A ſcutellum. Thorax armed with three prominences. Horn on the head recurved. Wing-caſes ſmooth.

SCARABÆUS NASICORNIS: ſcutellatus thorace prominentia triplici, capitis cornu recurvo, elytris lævibus.
Linn. Syſt. Nat.
Fab. Ent. Syſt. 1. *p.* 14. 38.

The male of this ſpecies is furniſhed with a long recurved horn on the head; the female has only a ſmall riſing on that part. It is found in Europe as well as China.

SCARABÆUS SENICULUS.

SPECIFIC CHARACTER.

Without ſcutellum. The anterior part of the thorax furniſhed with two horns, poſterior of the head bidentated.

SCARABÆUS SENICULUS: exſcutellatus thorace antice clypeo poſtice bicorni. *Fab. Ent. Syſt.* 1. *p.* 43. 142.

The annexed figures exhibit the two ſexes of Scarabæus Seniculus. In ſome ſpecimens the ſpots are very indiſtinct and reddiſh, in others the wing-caſes have faint red ſtriæ. The female has the rudiments of horns on the thorax.









* *Scarabæus Molossus.*

** *Scarabæus Seniculus.*

*** *Scarabæus Bucephalus.*

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COLEOPTERA.

SCARABÆUS MOLOSSUS.

SPECIFIC CHARACTER.

Without ſcutellum. Thorax blunted, armed with two teeth, or horns: impreſſed on each ſide. Front of the head lunated; with a horn. Wing-caſes ſmooth.

SCARABÆUS MOLOSSUS: exſcutellatus thorace retuſo bidentato utrinque impreſſo, clypeo lunato unicorni integro, elytris lævibus. *Linn. Syſt. Nat.* 2. 543. 3.
Fab. Ent. Syſt. 1. *p.* 51. 167.

S. Moloſſus and S. Bucephalus are very common in China. The firſt ſeems a local ſpecies, the latter is ſaid to be found in other parts of the Eaſt Indies. *Olivier* has given three varieties of Scarabæus Moloſſus. The ſpecimen figured in the annexed plate is the *var. c.* of that author.

The larvæ of the larger kinds of coleopterous inſects, abounding in unctuous moiſture, are not leſs eſteemed as food among ſome modern nations, than they were by the epicures of antiquity. In Jamaica, and other iſlands in the Weſt Indies, the Macokko [a] larva is an article of luxurious food; and in China moſt inſects in that ſtate are appropriated to the ſame purpoſe. Thus alſo the Romans introduced the larvæ of the Lucani [b] and Cerambyes [c] in their voluptuous repaſts; previouſly feeding them on farinaceous ſubſtances to give conſiſtence to the animal juices.

The learned author of the laſt account we have of China, ſays, "Under the roots of the canes is found a large white grub, which being fried in oil is eaten as a dainty by the Chineſe." Perhaps this is the larva of Scarabæus Moloſſus, which, like many other of the Scarabæi,[d] may live ſedentary in the ground, and ſubſiſt on the roots of plants: the general deſcription and abundance of this inſect in China favours ſuch opinion. The ſame author obſerves, in another part of his work, that "the aurelias of the ſilk worm which is cultivated in China, after the ſilk is wound off, furniſh an article for the table." This alſo is a very ancient cuſtom among the Aſiatics, and even Europeans, before the ſixteenth century, if we may credit Aldrovandus: [e] it is certain the worms, if not the aurelias, were adminiſtered in medicine in early ages. [f]

[a] Prionus damicornis. *Fab. Ent. Syſt.*—Cerambyx damicornis. *Linn. Mant.*

[b] Stag beetles. [c] Capricorn, or Goat beetles.

[d] The larvæ of the Scarabæi live in the trunks of decayed trees, in putrid and filthy animal ſubſtances, or in the earth. The laſt are the moſt injurious, becauſe they deſtroy the roots of plants. All the known kinds of theſe larvæ are of an unwieldy form, and whitiſh colour, the ſkin free from hairs, and only the head and fore feet defended with a ſhelly covering.

[e] The German ſoldiers ſometimes fry and eat ſilk worms. *Aldrov.*

[f] Silk worms dried, powdered, and put on the crown of the head, help the *vertigo* and *convulſions*; mundify or cleanſe the blood, &c. &c. *Schroderus, Serapio, &c. &c.*

SCARABÆUS SACER.

SACRED BEETLE.

SPECIFIC CHARACTER.

No ſcutellum. Front of the head divided into ſix dentations. Thorax unarmed, margin crenulated. Wing-caſes ſmooth. Shanks of the poſterior legs hairy.

SCARABÆUS SACER: exſcutellatus clypeo ſex dentato thorace inermi crenulato, tibiis poſticis ciliatis, elytris lævibus. *Linn. Syſt. Nat.*

Fab. Ent. Syſt. 1. *p.* 62. 205.

Scarabæus Sacer is a native of China; it is alſo found in other parts of the Eaſt Indies, in Egypt, Barbary, the Cape of Good Hope, and other countries of Africa, and throughout the ſouth of Europe.

A few remains of ancient monuments, and ſome fragments of hiſtoric information, preſerved from an early period of the world, afford certain and intereſting details of this inconſiderable creature. Thoſe remains evince indeed but the firſt dawning of natural and moral philoſophy on the human mind, but, connected with the hiſtory of the inſect before us, are too important to be paſſed over in ſilence.

The Scarabæus was held in profound veneration by the people of Egypt.[g] They regarded it as a viſible deity; but a more refined ſyſtem of religious worſhip prevailed in their temples among the prieſts and ſages.[h] They deemed it only the ſymbol of their god, and, aſcribing both ſexes to the *Scarab*, it became a ſtriking emblem of a ſelf-created and ſupreme firſt cauſe.[i]

This inſect was more eſpecially the ſymbol of their god Neith,[k] whoſe attribute was power ſupreme in governing the works of creation, and whoſe glory was increaſed, rather than diminiſhed, by the preſence of a ſuperior being, *Phtha*, the creator. The theological definition of the two powers being independent, yet centering in one ſpirit, is implied by the figurative union of two ſexes in the Scarab. In the latter ſenſe it ſignified therefore but one omnipotent power. The Scarab, typifying Neith, was carved or painted on a

[g] The ſpecies worſhipped by the Egyptians is preciſely noted by Linnæus. *Scarabæus ſacer:* and alſo by Olivier. *Scarabé ſacré.* "Cet inſecte étoit autrefois en veneration en Egypt." *Oliv.*

[h] *Eſchenbach, Jablonſki, Savary, &c.*

[i] "The father, mother, male and female art thou." *Syneſius. Hymn. Phtha.*—"The Egyptian ſpirit *Phtha* gave chaos form, and then created all things." *Jamblichus de Myſteriis, ſect.* 8.

[k] *Neith.* The diſpoſer of all things, &c. *Jablonſki.* "Sais," of the Delta, "the capital of its diſtrict, is a conſiderable city, of which Amaſis was king. *Neith*, the Minerva of the Greeks, is the titular divinity." *Plato in Timæo.*—"On the door of the temple of *Neith* was engraved in hieroglyphics, 'I am what is, what was, what ſhall be; mortal has never raiſed my veil; the ſun is the fruit of my womb.'" *Proclus Commentary on the Timæus of Plato*, &c.—Theſe paſſages demonſtrate Neith and Phtha to be two attributes of one ſpirit. The third attribute is Cneph, or divine goodneſs. *Savary.*

ring, and worn by the ſoldiers, as a token of homage to that power who diſpoſed of the fate of battles;[l] and ſculptured on aſtronomical tables, or on columns,[m] it expreſſed the divine wiſdom which regulates the univerſe and enlightens man.

[l] Authors quote a doubtful paſſage in *Herapollo Hieroglyph. lib.* 1. to ſupport this opinion. That ſuch rings were worn by the ancient Egyptians is beyond conjecture, many remains of them, and ſome very perfect, have been found in the ſubterranean caverns and ſepulchres in the Plain of Mummies near Saccara and Giza. Thoſe which we have examined, are remarkable for the convexity, or full *relievo* of the figure ſculptured on them, in ſome it is of the natural ſize of the inſect, but generally ſmaller; the ſtone, cornelian, without a rim, and turning on a ſwivel ring of gold.

[m] Linnæus ſays the Scarabæus ſacer is ſculptured on the antique Egyptian columns in Rome. "Hic in columnis antiquis Romæ exſculptus ab Ægyptiis." *Syſt. Nat.* Does Linnæus allude to any remains of thoſe coloſſal obeliſks, which Auguſtus tranſported to Rome when he ſubjugated Egypt, or others of more recent date? It would increaſe the intereſt of our enquiries, to learn, that the Scarabæus was among the hieroglyphics, on the two very ancient obeliſks, carried from Heliopolis, the city of the Sun.

The indefinite and viſionary interpretations, impoſed on moſt Egyptian hieroglyphics through a long ſeries of ages, will barely ſupport a few conjectures on their original ſignification. Thoſe which related to local incidents, hiſtory, or the arts, are veiled in profound obſcurity. The phænomena of nature, and aſtronomical calculations, inſcribed in thoſe characters, are ſcarcely better underſtood, though the knowledge of thoſe ſciences have been in part handed down to us from the learned Egyptians in remote ages. We are informed by ancient writers, that the Scarabæus engraved on the aſtronomical tables of theſe people, implied the divine Wiſdom which governed the motion and order of the celeſtial bodies; that thoſe tables were huge and maſſy ſtones, or columns of granite, with the characters and figures, large, and highly emboſſed; in ſhort, ſuch as were ſuppoſed capable of long reſiſtance to the corroding hand of time. Among thoſe the Scarab was probably the moſt conſpicuous, its ſize gigantic, and the figure frequently repeated; for this we have obſerved, even on ſmall Egyptian antiques.

Various valuable remains of tablets, with figures of the *Scarabæus ſacer*, are preſerved in the Britiſh Muſeum and other collections of antiquities in this country. Thoſe we have examined are of various deſcriptions, ſome ſmaller than the inſect itſelf, others of a monſtrous ſize. The ſtones on which they are ſculptured generally *green nephritic* or *jade ſtone*, or a kind of *baſaltes*, and black marble; the figure *baſſo relievo*, on a tablet or ſlab, but oftener in *relievo*, with the prominent characters of the inſect very accurately defined, particularly the ſix dentations of the clypeo, and thoſe of the tibiæ. The reverſe of the emboſſed ſide is flat and ſmooth, and abounds in characters altogether unknown, though, from the number of religious objects of worſhip occaſionally interſperſed, we may preſume they contain an ample ſtore of the ancient ſacerdotal language: the moſt remarkable were the ſcarab, the ſceptre and eye,[a] the human figure with a dog's head,[b] the hawk,[c] and the Ibis,[d] or ſacred bird. On the thorax of one fine ſpecimen we remarked four elegant figures. One of them is holding a *cornucopia* in the left hand, and a branch in the right: this is perhaps a ſubordinate deity of the Nile, that river having been once found depictured on an antique Alexandrian coin, like an aged man, holding the cornucopia, and a branch of the Papyrus; denoting its abundance and produce.

The digreſſion on the mythological hiſtory of this inſect may be conſidered by ſome as a tedious deviation from the purſuit of the naturaliſt; with others we truſt it will be more favourably received; for it proves to the unprejudiced mind how deeply the hiſtory of nature, and in the preſent inſtance the ſcience of Entomology, involves a moſt important enquiry into the firſt philoſophical opinions of the human race. The means, however trifling, muſt not be contemned, which illumine the moſt ſublime of all human reſearches,—*The Study of Mankind.*

[a] *Oſyris*, or the ſun. [b] *Anubis.* [c] *Horus*, a famous deity, had three cities dedicated, called by the Greeks the cities of *Apollo*.

[d] The mummies of theſe birds are found in urns, in the ſubterranean galleries called the well of birds near *Saccara*, ſuppoſed from the ſize to be the Tantalus Ibis of Linnæus.

SCARABÆUS LEEI.

SPECIFIC CHARACTER.

Without ſcutellum. Obſcure copper colour. Under ſide black. Shield of the head margined.

SCARABÆUS LEEI: exſcutellatus obſcure cupreus ſubtus niger, clypeo emarginato.

Fab. Ent. Syſt. 1. 65. 215.

SCARABÆUS CINCTUS.

SPECIFIC CHARACTER.

Without ſcutellum. Unarmed, black. Margin of the elytra pale. Shield of the head margined.

SCARABÆUS CINCTUS: exſcutellatus muticus niger elytrorum margine pallido; clypeo emarginato.

Fab. Ent. Syſt. 1. 69. 231.

CETONIA CHINENSIS.

SPECIFIC CHARACTER.

Shining green and gold colour. Shield of the head margined, with two ſpines. Poſterior part of the thorax lobed. Wing-caſes terminate in an acute ſpine.

CETONIA CHINENSIS: ænea clypeo emarginato ſubſpinoſo, thorace poſtice lobato, elytris acuminatis.

Fab. Ent. Syſt. 1. *p.* 2. 126. 6.

This, and the next ſpecies, are deſcribed by Fabricius, in the two new genera, Cetonia and Melolontha. They are Scarabæi of the Linnæan ſyſtem. Cetonia Chinenſis is a fine and very rare inſect.

MELOLONTHA VIRIDIS.

SPECIFIC CHARACTER.

Above green. Beneath golden colour, or bronze.

MELOLONTHA VIRIDIS: glabra ſupra viridis ſubtus aurea. *Fab. Ent. Syſt.* 1. *p.* 2. 160. 23.

Oliv. Inſ. tab. 21. *fig.* 6. *tab.* 3. 18.

This ſpecimen nearly correſponds with one of the Melolontha viridis figured by Olivier, which came from the Cape of Good Hope: our inſect is undoubtedly from China.







Cetonia Chinensis. Melolontha viridis.

London, Published as the Act directs by E. Donovan, March 1, 1799.



Curculio Chinensis.
barbirostris.
squamosus.
longipes.
verrucosus.
pulverulentus.
perlatus.

London Published as the Act directs by E.Donovan Nov.1.1798.

CURCULIO CHINENSIS.

GENERIC CHARACTER.

Antennæ club-ſhaped, and inſerted in a horny proboſcis or ſnout.

SPECIFIC CHARACTER.

Beak long. Thighs dentated. Body covered with yellowiſh powder, except a ſtripe of black on the ſides of the thorax and wing caſes: a ſpine on each ſide of the beak, at the apex.

CURCULIO CHINENSIS: longiroſtris, femoribus dentatis [a], corpore polline flaveſcente obtecto, lateribus nigris, roſtro utrinque ſpinoſo.

This inſect ſeems nearly allied to *Curculio mucoreus*, an Indian ſpecies, deſcribed by Linnæus, but not figured by any author: the lateral ſtripe of black; and the denticulations on the poſterior thighs of our inſect clearly removes it, however, from the Linnæan ſpecies. Among the *Curculiones* deſcribed ſince by Fabricius, we have not diſcovered any with which our ſpecies can be confounded; and deeming it a non-deſcript, we name it ſpecifically *Chinenſis*; a name, perhaps, too local, but expreſſive of the native place of our ſpecimen; and not applied by Fabricius, in his laſt work, to any inſect of the ſame genus, though that author has exhauſted almoſt every applicable name, in the deſcriptions of more than four hundred of its ſpecies.

The only ſpecimen of this curious inſect we have ſeen, is in the poſſeſſion of Mr. Drury of London, from whoſe extenſive collection we have been liberally permitted to copy, and deſcribe, ſuch Inſects as we conſidered worthy of noticing in this work.

[a] Except the lateral black ſtripes, and the roſtrum, Curculio Chinenſis is totally covered with a bright brown powder, or rather, with very minute hairs which adhere but ſlightly, and reſemble that ſubſtance. We obſerve a ſimilar farinaceous appearance on the *Curculiones, Lacteus, Niveus*, &c. and eſpecially on that gigantic beetle *Scarabæus Elephas*.

CURCULIO LONGIPES.

SPECIFIC CHARACTER.

General colour blackiſh brown. Wing-caſes ferruginous. Beak long, margined with ſmall irregular tubercles on each ſide, and at the apex. Anterior legs longeſt.

CURCULIO LONGIPES: longiroſtris nigricans elytris ferrugineis, roſtro emarginato, pedibus anticis longioribus. *Fab. Ent. Syſt.* 1. *p.* 2. 395. 4.
Oliv. fig. 191.

All the ſpecimens of this *Curculio* that have come under our inſpection, are natives of China. Fabricius ſays it is from the Cape of Good Hope [b].

CURCULIO BARBIROSTRIS.

SPECIFIC CHARACTER.

Entirely black. Beak long, and bearded. Three ſpines on the anterior ſhank of the legs.

CURCULIO BARBIROSTRIS: longiroſtris niger roſtro barbato, tibiis anticis tridentatis. *Fab. Ent. Syſt.* 1. *p.* 2. 418. 105.

Uncommonly ſcarce. Fabricius refers for this inſect to the collection of Cramer. We have only ſeen the ſpecimen from which our figure is taken.

[b] The inaccuracy of this remark of Fabricius will appear by comparing the deſcriptions and ſynonyms of Curculio longipes, in his *Species Inſectorum*, with the ſame ſpecies in his *Entomologia Syſtematica*. In the firſt he deſcribes Curculio longipes, quotes fig. 3. tab. 33. vol. 2. of Mr. Drury's work, and gives its habitat, Cape of Good Hope. In his laſt work he gives the ſame deſcription, changes the reference from Mr. Drury's work to that of Olivier, fig. 191; but continues the other references, by which the Chineſe ſpecies is probably unintentionally left as a native of Africa.

CURCULIO VERRUCOSUS.

SPECIFIC CHARACTER.

Snout ſhort, colour throughout black, with a faint braſſy gloſs. Wing-caſes beſet with ſtriæ of elevated points, and terminated at the apex in a ſingle obtuſe protuberance.

CURCULIO VERRUCOSUS: breviroſtris aeneo niger elevato punctatus elytris poſtice verrucoſis. *Linn. Syſt. Nat.* 2. 618. 90.
Fab. Ent. Syſt. 1. *p.* 2. 478. 353.

This can be no other than Curculio verrucoſus, though our ſpecimen came from China, and that noticed by Fabricius from the Cape of Good Hope. The three elevated ſtriæ of warts on each of the wing caſes, and the intermediate double row of impreſſed points, are deciſive in our opinion of this ſpecies.—We have another that is mottled with clay colour, which is probably found in Africa.

CURCULIO SQUAMOSUS.

SPECIFIC CHARACTER.

Proboſcis ſhort. Entirely covered with green ſcales. Impreſſed lines on the thorax and proboſcis.

CURCULIO SQUAMOSUS: breviroſtris viridi ſquamoſus roſtro thoraceque canaliculatis. *Fab. Ent. Syſt.* 1. *p.* 2. 452. 244.

A ſmall, but ſuperb ſpecies, being totally covered with minute ſcales of an oblong form, and reſplendent green colour, interſperſed with changeable ſparks of gold and crimſon, in various reflections of light. This ſcaly covering is not unlike that of Curculio argentatus found in England; but of a brilliance ſcarcely inferior to the gem-like ſpangles on the Curculio imperialis of Brazil.—Curculio ſquamoſus is repreſented in its natural ſize, in the annexed plate; and, in juſtice to an inſect of ſuch uncommon beauty, an additional plate is given, to exhibit its appearance in the opaque microſcope.—It is extremely common in China.

CURCULIO PULVERULENTUS.

SPECIFIC CHARACTER.

Entirely greyiſh. Head flat, and marked with longitudinal lines: an impreſſed canal down the middle.

CURCULIO PULVERULENTUS: breviroſtris cinereus capite plano canaliculato. *Fab. Ent. Syſt.* 1. *p.* 2. 452. 243.

Like Curculia ſquamoſus this inſect is entirely black, when diveſted of its ſcaly covering. It has been ſuppoſed a variety of C. ſquamoſus, but Fabricius conſiders them as two ſpecies, and we are of the ſame opinion.

CURCULIO PERLATUS.

SPECIFIC CHARACTER.

Black. Abdomen white, with elevated ſhining black ſpots. Beak ſhort and furrowed.

CURCULIO PERLATUS: breviroſtris niger abdomine albo: punctis elevatis glabris atris, roſtro ſulcato. *Fab. Ent. Syſt.* 1. *p.* 2. 459. 271.

Neither this nor the two preceding ſpecies have been figured in any work. We have given a figure of the under ſide of this inſect, to illuſtrate the ſpecific character given by Fabricius.

COLEOPTERA.



Curculio pulverulentus.

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COLEOPTERA.







Cerambyx Rubus. *

Cerambyx Reticulator. * *

Cerambyx Farinosus * *

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CERAMBYX FARINOSUS.

GENERIC CHARACTER.

Articulations of the antennæ gradually decreaſe in ſize towards the end. Thorax ſpined or gibbous. Elytra narrow, and of equal length throughout.

SPECIFIC CHARACTER AND SYNONYMS.

Thorax ſpined. Shells ſpotted with a white farinaceous ſubſtance. Antennæ longer than the body.

CERAMBYX FARINOSUS. *Linn. Syſt. Nat.* 2. 626. 24.
Fab. Spec. Inſ. 1. *p.* 214. 25.
Stenocorus Farinoſus: thorace ſpinoſo piceus elytris punctis ſparſis farinoſis, antennis longis.
Fab. Ent. Syſt. 1. 295. 11.
CERAMBYX CHINENSIS. *Forſt. N. Sp. Cent.* 1. 39.
Oliv. Inſ. 66. *tab.* 7. *fig.* 46.

Among ſome Chineſe drawings of the late Mr. Bradſhaw, we obſerved one on which the metamorphoſis of this Cerambyx ſeemed to be delineated. The larva was partly concealed in the hollow of a piece of decayed wood; it was of a whitiſh colour, with the head and tail black, as deſcribed by Fabricius.

CERAMBYX RUBUS.

GENERIC CHARACTER.

Articulations of the antennæ gradually decreaſe in ſize towards the end. Thorax ſpined or gibbous. Elytra narrow, and of equal length throughout.

SPECIFIC CHARACTER AND SYNONYMS.

Thorax ſpined, bimaculated. Baſe of the ſhells ſtudded with ſmall protuberances. Apex of the ſhells terminate in a ſharp point.

CERAMBYX RUBUS. *Linn. Syſt. Nat.* 2. 625. 21.

LAMIA RUBUS: thorace ſpinoſo bimaculato, elytris baſi ſcabris apiceque mucronatis.
Fab. Ent. Syſt. 2. 290. 89.
Oliv. Inſ. 67. *tab.* 7. *fig.* 57.

This ſpecies, we find, is not uncommon in China. It is the largeſt of its genus that we are acquainted with from that country.

CERAMBYX RETICULATOR.

GENERIC CHARACTER.

Articulations of the antennæ gradually decreaſe in ſize towards the end. Thorax gibbous or ſpined. Elytra narrow, and of equal length throughout.

SPECIFIC CHARACTER AND SYNONYMS.

Thorax ſpined. Thorax and ſhells yellow brown; the firſt marked with longitudinal black ſtreaks, the latter reticulated with the ſame colour.

LAMIA RETICULATOR: thorace ſpinoſo nigra thorace elytriſque fulvis, thorace nigro lineato, elytris reticulatis. *Fab. Ent. Syſt.* 1. *p.* 2. 278 44
Oliv. Inſ. 67. *tab.* 12. *fig.* 85.

Cerambyx reticulator is a very rare ſpecies; we have never ſeen more than two ſpecimens of it. It is altogether a beautiful inſect; but the ſingular ſtructure of the antennæ deſerves particular notice: it is entirely brown except the firſt articulation, which is black; the ſecond has a large verticillated tuft of black hair at the ſummit; at the baſe of this articulation it has another tuft, but ſmaller; and a ſimilar tuft, but ſtill ſmaller, is ſituated on the third and fourth articulations.



* Buprestis Villata. ** Buprestis Ocellata.

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BUPRESTIS VITTATA.

GOLDEN-STRIPE BUPRESTIS.

GENERIC CHARACTER.

Antennæ ſetaceous, as long as the thorax. Head half retracted, or drawn back within the thorax.

SPECIFIC CHARACTER.

Elytra impreſſed with points or ſpots: marked with four longitudinal ridges, and terminated in two teeth or ſpines; a ribbon-like ſtripe of golden yellow, down each elytron.

Buprestis Vittata: elytris bidentatis punctatis: lineis quatuor elevatis viridi æneis vittaque lata aurea. *Fab. Ent. Syſt.* 1. *p.* 2. 186. 5.

Bupreſte Bande-dorée. *Oliv. Inſ.* 32. *tab.* 3. *fig.* 17.

The Bupreſtides form an extenſive, and moſt brilliant tribe of coleopterous inſects. Braſil and New Holland produce ſome gigantic ſpecies, but none more beautiful than thoſe of India. We need adduce no other proof of this, than Bupreſtis chryſis, ſternicorus, attenuata, ocellata, and vittata. Theſe wrought into various devices, and trinkets, decorate the dreſſes [x] of the natives in many parts of India. The Bupreſtis vittata in particular, is much admired among them. It is, we believe, entirely peculiar to China, where it is found in vaſt abundance, and diſtributed from thence at a low price among the other Indians. The Chineſe, who always profit by the curioſity of Europeans, collect vaſt quantities of this Bupreſtis, and other gay inſects, in the interior of the country, and traffic with them.

A conſiderable error ſeems to have ariſen concerning this ſpecies, and the true Bupreſtis ignita of Linnæus. All authors, except Fabricius and Olivier, have conſidered the Bupreſtis vittata, and ignita, the ſame. Fabricius, in his *Species Inſectorum*, refers to *Muſ. Dom. Banks* only, for the Bupreſtis vittata; and to the 14th figure, plate 6, in *Sulzer*'s work, for a figure of Bupreſtis ignita. In the *Entomologia Syſtematica* we however find the ſame reference to the figure of *Sulzer*, for B. vittata [y]; and, to increaſe the perplexity, preciſely the ſame reference under that of B. ignita [z] alſo.

[x] A pair of ſlippers embroidered with little pieces of the wing caſes of this inſect is preſerved in the Leverian Muſeum

[y] Vol. I. part 2. p. 186. 5.

[z] Vol. I. part 2. p. 192. 28.

The Bupreſtis ignita of Linnæus, we imagined, was unknown in the cabinets of the curious in this country, till we diſcovered an inſect nearly correſponding in character with it, in the collection of Mr. Drury, and which we preſume is the B. ignita, or at leaſt a variety of it. It has not the brilliance of colours that ſo eminently diſtinguiſhes B. vittata, but in form and ſize it agrees with it. The only figure of that ſpecies is given by Olivier, from a ſpecimen formerly in the cabinet of Gigot d'Orcy, of Paris. We have examined the ſpecimen in the cabinet of Sir J. Banks, referred to by Fabricius as B. vittata, and find the figure in Sulzer is of that ſpecies, as well as the ſpecimen we have repreſented.

Fabricius has given as a part of the ſpecific diſtinction of theſe inſects, that B. ignita has *three ſpines* at the end of each wing caſe, or elytron, and B. vittata no more than *two*. This may form a ſufficient characteriſtic in thoſe ſpecies; but we muſt remark, that it is not ſo in Bupreſtis ocellata. We have two ſpecimens that have two ſpines at the end of each elytron, and another with three, as Fabricius has deſcribed it. We alſo find ſeveral inſects nearly allied to B. vittata, the ſtripe of gold on each ſide excepted; one of theſe has ſix teeth, another four teeth, and a third only two.

The Bupreſtides are ſuppoſed, for the moſt part, to undergo their transformations in the water, or marſhy ground.

Canna Indica.—Indian flowering Reed.

This plant is common in China, and is found alſo in moſt other parts of Aſia, Africa, and America. In our climate it requires to be placed in the ſtove, where it produces an abundant ſucceſſion of flowers throughout the ſummer. It bears a berry which is perfectly hard and round, of a black colour, and highly poliſhed. It is called Indian Shot.

BUPRESTIS OCELLATA.

OCELLATED BUPRESTIS.

SPECIFIC CHARACTER
AND
SYNONYMS.

Shining green. Elytra terminate in three points: a large round yellow ſpot in the middle of each elytron, and two golden-red ſpots, one above and the other below it.

BUPRESTIS OCELLATA viridi nitens elytris tridentatis: maculis duabus aureis ocellarique flava. *Fab. Ent. Syſt.* 4. *p.* 2. 193. 30.
De Geer Inſ. 7. 633. 30. *tab.* 47. *fig.* 12.
Bupreſte Oculé. *Oliv. Inſ.* 32. *tab.* 2. *fig.* 3.
Sulz. Hiſt. Inſ. tab. 6. *fig.* 15.

The Bupreſtis ocellata is a native of China, and is very rare: ſpecimens of it have been found in parcels of the common ſort. Olivier ſays it is from *Chandernagore* in the Eaſt Indies. Mr. Drury has an extraordinary variety of this inſect from China, in which the two ſpots unite at the future ſo as to form only one large ſpot on the back when the wing caſes are cloſed.

Theſe ſpots on the wing caſes are ſtrikingly characteriſtic of this ſpecies; at leaſt we have not obſerved them in any other of the Bupreſtis genus. They are uſually ſituated in the centre of each elytron; are ſomewhat pellucid, and in fine ſpecimens are cream colour, ſurrounded with a crimſon circle. Theſe ſpots are ſometimes brown; probably they become ſo after the inſect dies.

Our figures repreſent this inſect with expanded wings; one of thoſe is deſigned to exhibit the beautiful appearance of the under ſurface, particularly the effulgent abdomen and purple colour of the interior part of the ſhells: this is ſeen hovering over the flower of the *Canna Indica:* the other repreſents the upper ſurface.

COLEOPTERA.



Mylabris Cichorei. *Sagra femorata.*

London Published as the Act directs by E.Donovan. January 1792.

TENEBRIO FEMORATUS.

GENERIC CHARACTER.

Antennæ like a ſtring of beads, extreme articulation roundiſh. Thorax plano-convex, margined. Head porrected. Elytra rather ſtiff.

SPECIFIC CHARACTER.

Greeniſh copper colour. Thighs and ſhanks of the poſterior legs dentated.

SAGRA FEMORATA: viridi ænea femoribus tibiiſque poſticis dentatis. *Fab. Ent. Syſt. T.* 1. *p.* 51, 55. 1.

This inſect may be referred to the Linnæan genus Tenebrio. It is deſcribed by Fabricius in the *Species Inſectorum*, in the new genus *Alurnus*; in the *Entomologia Syſtematica* of the ſame author, it is removed to another new genus, *Sagra*, and its former ſpecific name, femoratus, neceſſarily altered to femorata. As the characters of theſe Fabrician genera are taken from the palpi, maxilla, and labium, we prefer the more obvious characters of the Linnæan genus.

The figures quoted by Fabricius differ, in ſome reſpects, from the Chineſe ſpecimens. Sulzer repreſents it of a green colour, without a tinge of red purple, or copper colour, ſo predominant in every ſpecimen we have ſeen. Our inſects are of two kinds: one is of a glowing purple, reſplendent as metal, and changeable to green or yellow; the other is purple alſo, but not quite ſo vivid, being tinged with green.

MELOE CICHOREI.

GENERIC CHARACTER.

Antennæ moniliform: laſt joint oblong. Thorax roundiſh. Elytra ſoft and flexible. Head inflected and gibbous.

SPECIFIC CHARACTER.

Black. Wing-caſes yellow, with three tranſverſe black bands.

MELOE CICHOREI: nigra elytris flavis: faſciis tribus nigris. *Linn. Syſt. Nat.* 2. 680. 5.
Mylabris Cichorei. *Fab. Ent. Syſt. T.* 1. *p.* 2. 88. 2.

This inſect is very common in China, and ſome other parts of the Eaſt Indies. The ſmall ſpecimen is

rare, but is, probably, only a variety of the other ſort. According to Olivier, the Meloe cichorei is uſed by the Chineſe in their medical preparations inſtead of the Cantharis veſicatorius of the Europeans, and is ſuppoſed to be more efficacious in certain caſes. The ſame author quotes a paſſage in *Dioſcoride Mat. Med. Lib.* 2. to prove that it is alſo the Cantharides of the ancients [i].

[i] " Les Cantharides des anciens et celle des Chinois ne ſont pas les mêmes que celles des Européens. Les Chinois employent le Mylabre de la Chicorée, &c. &c."—" The Cantharides of the ancients, and thoſe of the Chineſe, are not the ſame as ours. The Chineſe employ the *Mylabre de la Cichorei*, and it appears from *Dioſcoride Mat. Med. Lib.* 2. *Cap.* 65, the ancient Cantharides were the ſame as thoſe now uſed by the Chineſe." " The moſt efficacious ſort of Cantharides," ſays Dioſcoride, " are of many colours, having yellow tranſverſe bands; the body oblong, big, and fat; thoſe of only one colour are without ſtrength." The deſcription Dioſcoride has given, does not agree with our ſpecies of Cantharides, as they are of a fine green colour, but is more applicable to the *Mylabre de la Cichorei*, which is very common in the country where Dioſcoride lived. *Olivier's Entomologie, ou Hiſt. Nat. des Inſectes. Vol. I. Introd.*

The Cantharides of the ancients, are by no means to be confounded with thoſe of medical writers in the laſt century. By the term Cantharides, in an European *Pharmacopeia*, we underſtand the Meloe veſicatorius * of Linnæus, an inſect whoſe medicinal properties are very generally known †. The Cantharides of the ancients can ſcarcely be aſcertained; it was a term indiſcriminately applied to ſeveral kinds of inſects, and too often without regard to their phyſical virtues. Pliny ſpeaks of the Cantharis as a ſmall beetle that eats and conſumes corn; and of another that breeds in the tops of aſhes and wild olives, and ſhines like gold. The ancients were certainly well acquainted with our common ſort, though it is confounded with others in a general appellation ‡. *Hippocrates*, *Galen*, *Pliny*, *Matthiolus*, and other phyſical writers of antiquity, treat of the medicinal uſes of Cantharides; but it is not clear that they alluded to only one ſpecies §.

* Geoffroy calls this a Cantharis. The Linnæan Cantharis is a diſtinct genus.

† Applied externally to raiſe bliſters. It is a violent poiſon taken inwardly, except in ſmall portions.

‡ The common ſort has been called *Muſca Hiſpanica* by ſome Latin authors, and hence Spaniſh fly by Boyle.

§ Olivier endeavours to prove that the Mylabris Cichorei is the ancient Cantharides; the authority of his opinion is credible, and the inference natural, if not concluſive. But if it were in uſe, ſo alſo might the common ſort, for Dioſcoride, whom he quotes, mentions thoſe of only one colour alſo. The ancients often confounded the term Scarabæus with Cantharis; but whether becauſe they knew that the common kinds of Scarabæi produce the ſame effects as the Cantharis, is uncertain.—The *Scarabæus auratus*, and *Melolontha*, ſeveral *Coccinellæ*, *Cimex nigro-lineatus*, *&c. &c.* have a place in the *Materia Medica* as *Cantharides.*



Mantis Oculata. Mantis Flabelliformis.

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MANTIS OCULATA.

CORNUTED-EYE CAMEL CRICKET.

GENERIC CHARACTER.

Head ſlightly attached to the thorax, unſteady: the mouth armed with jaws and palpi. Antennæ ſetaceous.

SPECIFIC CHARACTER AND SYNONYMS.

Thorax filiform, or like a thread, triangular. Eyes oblong, prominent, and terminated each in a ſharp ſpine.

Mantis Oculata thorace triangulo filiformi, oculis oblongis porrectis acuminato ſpinoſis. *Fab. Ent. Syſt. T.* 2. 19. 26.

Mantis bicornis thorace lævi, capite bipartito ſubulato. *Linn. Syſt. Nat.* 2. 691. 11.

Two figures of the Mantis, very much reſembling our ſpecies, is given in the work of Stoll on *Cicadæ, &c.* one kind he calls *La Mante ètroitement cornue,* the other *La Mante Chinoiſe ètroites cornue.* The firſt is from the coaſt of Coromandel and Tranquebar, the other, as its name implies, is a Chineſe inſect. We cannot diſcover any material difference between theſe figures and our ſpecimen, and are inclined to conſider them altogether as one ſpecies.

Few of the *Cicadæ* and *Locuſtæ* deſcribed by Fabricius, in his *Species Inſectorum,* have any reference to figures, becauſe a very ſmall number of them had been figured till Stoll publiſhed his work on thoſe genera. Stoll has occaſion to mention with regret, that Fabricius has ſcarcely noticed any of his plates. It is a conſiderable diſadvantage to the works of that author, as well as to the naturaliſt that conſults them, that no ſcientific names, or definitions, are given to the figures of many rare inſects included amongſt them.

The Mantis Oculata of Fabricius is an African inſect, and was deſcribed from the collection of the Right Hon. Sir J. Banks, Bart. we have compared our Chineſe ſpecimen with it, and find it is preciſely the ſame ſpecies.

MANTIS FLABELLICORNIS.

FAN-HORNED CAMEL CRICKET.

SPECIFIC CHARACTER.

A broad membrane on each ſide of the thorax, next the head. Anterior thighs terminate in a ſpine, the ſecond joint beſet with ſpines, and furniſhed with a lobe on one ſide. Antennæ pectinated.

MANTIS FLABELLICORNIS: thorace apice dilato membranaceo, femoribus anticis ſpina terminatis reliquis lobo, antennis pectinatis. *Fab. Ent. Syſt.* 2. *p.* 16. *ſp.* 16.

This Mantis is deſcribed by Fabricius only. Stoll has given the figure of an inſect not unlike it in his publication; and we have ſeen a ſpecimen ſimilar to it, which was found by Profeſſor Pallas near the Caſpian ſea. It is allied to Mantis Gongyloides, a native of Africa and Aſia, but bears a cloſer affinity to Mantis Pauperata [a] from Java, Molucca, and perhaps other iſlands in the Indian ſea.

Fabricius enumerates fifty-one ſpecies of this genus in his laſt ſyſtem; a conſiderable portion of theſe are from Aſia: had he included the lately diſcovered kinds in America and New Holland, his genus would have been far more comprehenſive. Few naturaliſts have had the opportunity of obſerving the manners of theſe creatures in diſtant countries; nor can we always rely on the information thoſe few have given. Of the European ſpecies we can ſpeak with more preciſion, becauſe ſome indefatigable naturaliſts have attended minutely to them; Roeſel in particular has treated at conſiderable length on the manners of the Mantis Religioſa of Linnæus.

Deſcriptions can only convey an imperfect idea of the extraordinary appearance of many creatures included in the Mantis and Locuſta genera. Among them are found ſpecies that bear a ſimilitude to the uſual forms of other inſects; but, from theſe we almoſt imperceptibly deſcend to others, bearing as ſtrong a ſimilitude to the vegetable part of creation; ſeeming as if Nature deſigned them to unite the appearance of a vegetable with the vital functions of an animal, to preſerve them from the ravages of voracious creatures, or to connect that chain of progreſſive and univerſal being, which

"The great directing MIND of ALL ordains."

Many of theſe creatures aſſume ſo exactly the appearance of the leaves of different trees, that they fur-

[a] Figured by Stoll under the name of *La Mante Goutteuſe Brune?*

niſh the entomologiſt with unerring ſpecific diſtinctions; thus we have ***L.*** *citrifolia, laurifolia, myrtifolia, oleifolia, graminifolia,* and others, equally expreſſive of their reſemblance in form, and colours, to the leaves of thoſe reſpective plants. Travellers in countries that produce theſe creatures, have been ſtruck with the phænomenon, as it muſt appear, of animated vegetable ſubſtances; for the manners of the Mantis, in addition to its ſtructure, are very likely to impoſe on the ſenſes of the uninformed. They often remain on the trees for hours without motion, then ſuddenly ſpring into the air, and, when they ſettle, again appear lifeleſs. Theſe are only ſtratagems to deceive the more cautious inſects which it feeds upon; but ſome travellers who have obſerved it, have declared they ſaw the leaves of thoſe trees become living creatures, and take flight.

M. Merian informs us of a ſimilar opinion among the Indians, who believed theſe inſects grew like leaves on the trees, and when they were mature, looſened themſelves and crawled, or flew, away. From the credulous, and unſcientific, marvellous reports of ſuch extraordinary creatures may be expected; but, to theſe we muſt add the authority of a naturaliſt, whoſe works are a valuable addition to our preſent knowledge of the hiſtory of nature: theſe are the works of Piſo [b].

"Thoſe little animals," ſays that author, "change into a green and tender plant, which is of two hands breadth. The feet are fixed into the ground firſt; from theſe, when neceſſary humidity is attracted, roots grow out, and ſtrike into the ground; thus they change by degrees, and in a ſhort time become a perfect plant. Sometimes only the lower part takes the nature and form of a plant, while the upper part remains as before, living and moveable: after ſome time the animal is gradually converted into a plant. In this Nature ſeems to operate in a circle, by a continual retrograde motion."

Has the father of inventive romance outdone this account of Piſo in his well-known extravagant poetical effuſions [c]? It may be imagined he has not; but before we diſmiſs his account with a haſty

[b] *Gulielmi Piſonis, Amſterl.* 1657.

[c] Luna quater junctis implêrat cornibus orbem, &c. OVIDII Metamorph.——*Sorores Phaëthontis in Arbores.*

Four times, revolving, the full moon return'd,
So long the mother and the daughters mourn'd;
When now the eldeſt, Phaëthuſia, ſtrove
To reſt her weary limbs, but could not move;
Lampetia would have help'd her, but ſhe found
Herſelf withheld, and rooted to the ground:
A third in wild affliction, as ſhe grieves,
Would rend her hair, but fills her hands with leaves:
One ſees her thighs transform'd, another views
Her arms ſhot out, and branching into boughs.
And now their legs, and breaſts, and bodies, ſtood
Cruſted with bark, and hardening into wood;
But ſtill above were female heads diſplay'd,
And mouths, that call'd the mother to their aid.
What could, alas! the weeping mother do?
From this to that with eager haſte ſhe flew,
And kiſs'd her ſprouting daughters as they grew:
She tears the bark that to each body cleaves,
And from the verdant fingers ſtrips the leaves:
The blood came trickling where ſhe tore away
The leaves and bark: the maids were heard to ſay,
"Forbear, miſtaken parent, oh, forbear!
A wounded daughter in each tree you tear:
Farewel for ever." Here the bark increas'd,
Clos'd on their faces, and their words ſuppreſs'd.

ADDISON'S *Tranſ. Phaeton's Siſters transformed into Trees.*

cenſure, let us attend to the opinion of a few authors, nearly contemporary with himſelf: we find theſe collected in the criticiſms of Roeſel on that paſſage.

From theſe it appears that the works of Piſo were much admired when firſt publiſhed, but we rely leſs implicitly on the information it contains, than his readers in the laſt century. Roeſel treats his account with more than merited ſeverity; not becauſe he could contradict the relation of Piſo, but, becauſe he had never obſerved the ſame circumſtance attend the Wandering Leaf, or Mantis Oratoria, in Europe [d]. This reaſoning is neither ſo concluſive, or liberal, as we ſhould expect from Roeſel; and more eſpecially as he afterwards deſcribes even the firſt ſymptom of the transformation as related by Piſo. When he ſpeaks of the death of the European ſpecies his words are, "As their diſſolution approaches, their green eyes become brown, and they unavoidably loſe their ſight: they remain a long while on the ſame ſpot, till at laſt they fall quite exhauſted and powerleſs, as if aſleep." What is this but ſubſtantiating part of the evidence of Piſo, which he has laboured before to diſcredit? As to the change after they remained long on the ground, ſuch as ſending forth fibres, roots, and ſtems, from the body of the inſect, it is only aſtoniſhing ſuch a well-informed naturaliſt ſhould have deemed it matter of ſurpriſe. Could he be ignorant of the many inſtances that occur, of animal ſubſtances producing plants [e]? or was he not informed that the pupa which commonly ſends forth a bee, a waſp, or cicada, has ſometimes become the nidus of a plant, thrown up ſtems from the fore part of the head, and changed in every reſpect into a vegetable, though ſtill retaining the ſhell and exterior appearance of the parent inſect at the root [f]? We own at firſt ſight with Roeſel that the account of Piſo ſeems "an inattentive and confounded obſervation," but that an inſect may ſtrike root into the earth, and, from the co-operation of heat, and moiſture, congenial to vegetation, produce a plant of the *cryptogamia* kind, cannot be diſputed. We have ſeen ſpecies of *clavaria* both of the undivided and branched kinds, four times larger than the inſect from which they ſprang; and can we then deny that the inſect mentioned by Piſo might not produce a plant of a proportionate magnitude? In ſhort, are we ſo well acquainted with the productions of Braſil as to contradict any of his aſſertions, concerning this transformation? Piſo does not ſay of what kind this vegetable was; it muſt ſurely be of the fungi

We quote this part of the poem at length; for as we peruſe it, every ſucceſſive line bears a ſtronger ſimilitude to the wonderful transformation of the Mantis as related by *Piſo*; we might be almoſt tempted to condemn the deſcription of the naturaliſt as a ſervile copy of Ovid's verſes, if the ſimilar transformation of other inſects above noticed, had not occurred to the knowledge of every entomologiſt.

[d] Among the annotations on the laſt edition of Roeſel's *Inſecten Beluſtigung* we find one relating to this part of the works of Piſo. "*Der ſeel Her geheime Rath Trew*, &c. Counſ. Trew aſſures Mr. Roeſel that *Piſo* not only very often gave out the credible obſervations of others, as his own, but himſelf believed the moſt incredible relations, and pretended to be an eye witneſs thereof." We quote this in juſtice to the remarks of Roeſel. *Note in page* 10, *ſection Das Wandlende Blat.*

[e] Such as Mucor cruſtaceus, &c.

[f] Specimens of theſe vegetated animals, are frequently brought from the Weſt Indies; we have one of the cicada from the pupa, as well as others produced from waſps and bees in the perfect or winged ſtate. Mr. Drury has a beetle in the perfect ſtate, from every part of which, ſmall ſtalks and fibres have ſprouted forth; they are very different from the tufts of hair that are obſerved on a few coleopterous inſects, ſuch as the Bupreſtis faſcicularis, of the Cape of Good Hope; they are certainly a vegetable production.

kind: reaſoning then from analogy, it might be an unknown ſpecies of *clavaria* with numerous and ſpreading branches; and, finally, the colour of his plant, on which authors lay much ſtreſs, might be green, though a colour not ſo predominant in that tribe of vegetables as ſome others.

The largeſt and moſt intereſting of the Indian ſpecies of Mantis is found in the iſle of Amboyna. Stoll contradicts the account of *Renard* g, who ſays theſe creatures are ſometimes thirteen inches in length; but we have a ſpecimen almoſt of that ſize. It is related by Renard, and others, that the larger kinds of Mantes go in vaſt troops, croſs hills, rivers, and other obſtacles that oppoſe their march, when they are in queſt of food. If they ſubſiſted entirely on vegetables, a troop of theſe voracious creatures would deſolate the land in their excurſions; but they prefer inſects, and clear the earth of myriads that infeſt it: if theſe become ſcarce from their ravages, they fight and devour one another. When they attack the plants, they do great miſchief. It is ſaid of ſome Locuſts and Mantes that the plants they bite wither, and appear as if ſcorched with fire: we have not heard of this peſtilential property in any of the larger ſpecies of Mantes.

Of the ſmaller kinds, the Mantis Oratoria is the moſt widely diffuſed, being found in Africa and Aſia as well as in all the warmer parts of Europe. Theſe creatures are eſteemed ſacred by the vulgar in many countries, from their devout or ſupplicating poſture. The Africans worſhip them; and their trivial names in many European languages imply a ſuperſtitious reſpect for them [h].

England produces no ſpecies of this tribe. The entomologiſts in this country muſt conſequently rely on the accounts of thoſe, who have obſerved them in other parts of the world. We ſhall ſelect a few remarks from Roeſel's extenſive deſcription of Mantis Oratoria and Gongyloides, becauſe, if we may preſume from the analogy they bear in form to Mantis Flabellicornis, the hiſtory of one will clearly elucidate that of the other.

Roeſel ſays, ſome of the Mantes are local in Germany; they are found chiefly in the vintages at Moedting in *Moravia,* where they are called *Weinhandel* [i]. The males die in October, the females ſoon after [k]. The young brood are preſerved in the egg ſtate, in a kind of oblong bag, of a thick ſpongy ſubſtance; this bag is imbricated on the outſide; it is faſtened lengthwiſe to the branch of ſome plant [l]. As the eggs ripen they are protruded through the thick ſubſtance of the bag, and the larva, which are about half an inch in length, burſt from them. Roeſel, wiſhing to obſerve the gradual progreſs of theſe creatures, to the winged ſtate, placed the bag containing the eggs in a large glaſs, which he cloſed, to prevent their eſcape. From the time they were firſt hatched they exhibited marks of a ſavage diſpoſition. He put different ſorts of plants into the glaſs, but they refuſed them, to prey on one another: this determined him to ſupply them with other inſects to eat: he put *ants* into the glaſs to them, but they then betrayed as much cow-

g Poiſſons des Molucques par M. Renard, Amſterl. 1754.

h Louva Dios by the Portugueſe. Preſque Dieu by the French.

i Probably a provincial term for a dealer in wine.

k Goetz, in his Beytrage, obſerves, that they live ſometimes ten years.

l To that of the vine in Mantis Oratoria.

ardice, as they had barbarity before; for the inſtant the Mantes ſaw the ants they tried to eſcape in every direction. By this Roeſel found the ants were the greateſt perſecutors of the Mantes. He next gave them ſome of the common muſca (houſe flies), which they ſeized with eagerneſs in their fore claws, and tore in pieces: but, though theſe creatures ſeemed very fond of the flies, they continued to deſtroy one another through ſavage wantonneſs. Deſpairing at laſt, from their daily decreaſe, of rearing any to the winged ſtate, he ſeparated them into ſmall parcels in different glaſſes; but, here, as before, the ſtrongeſt of each community deſtroyed the reſt.

Another time, he received ſeveral pair of Mantes in the winged ſtate; profiting by his former obſervation, he put each pair [a male and female] into a ſeparate glaſs, but they ſtill ſhewed ſigns of an eternal enmity towards one another, which neither ſex nor age could ſoften; for the inſtant they were in ſight of each other, they threw up their heads, brandiſhed their fore legs, and waited the attack: they did not remain long in this poſture, for the boldeſt throwing open its wings, with the velocity of lightning, ruſhed at the other, and often tore it in pieces with the crockets and ſpines of the fore claws. Roeſel compares the attack of theſe creatures to that of two huſſars; for they dexterouſly guard and cut with the edge of the fore claws, as thoſe ſoldiers do with their ſabres, and ſometimes at a ſtroke, one cleaves the other through, or ſevers its head from the thorax. After this the conqueror devours his vanquiſhed antagoniſt.

We learn from Roeſel alſo, the manner in which this creature takes its prey, in which reſpect we find it agrees with what is related of the extra European ſpecies. The patience of this Mantis is remarkable, and the poſture to which ſuperſtition has attributed devotion, is no other, than the means it uſes to catch it. When it has fixed its eyes on an inſect, it very rarely loſes ſight of it, though it may coſt ſome hours to take. If it ſees the inſect a little beyond its reach, over its head, it ſlowly erects its long thorax, by means of the moveable membranes that connect it to the body at the baſe; then, reſting on the four poſterior legs, it gradually raiſes the anterior pair alſo; if this brings it near enough to the inſect, it throws open the laſt joint, or crocket part, and ſnaps it between the ſpines, that are ſet in rows on the ſecond joint. If it is unſucceſsful, it does not retract its arms, but holds them ſtretched out, and waits again till the inſect is within its reach, when it ſprings up and ſeizes it. This is the uncommon poſture before alluded to. Should the inſect go far from the ſpot, it flies, or crawls after it, ſlowly on the ground like a cat, and when the inſect ſtops, erects itſelf as before. They have a ſmall black pupil or ſight which moves in all directions within the parts we uſually term the eyes, ſo that it can ſee its prey in any direction without having occaſion to diſturb it, by turning its head.

The moſt prevalent colour of this tribe of inſects is fine green, but many of theſe fade or become brown after the inſect dies: ſome are finely decorated with a variety of vivid hues; the moſt beautiful of theſe, that we have ſeen, are from the Moluccas.



* Gryllus vittatus. * Gryllus masulūs.

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GRYLLUS NASUTUS.

GENERIC CHARACTER.

Head inflected, armed with jaws, and furniſhed with palpi. Antennæ either ſetaceous or filiform. Wings wrapped round the body, and concealed under the elytra. Feet armed with two nails or crochets.

Acridæ.

SPECIFIC CHARACTER.

Head conic. Antennæ enſiform, or ſword ſhaped. Body green.

GRYLLUS NASUTUS: capite conico, antennis enſiformibus, corpore viridi. *Linn. Syſt. Nat.* 2. 692. 1.

This ſpecies is found in Africa, Aſia, and the ſouth of Europe. Its varieties are numerous; and in ſize and colour depends on the climate they breed in. Sulzer repreſents it with red wings: in the Chineſe ſpecimens theſe are tinged with green.

GRYLLUS VITTATUS.

SPECIFIC CHARACTER.

Head prominent, teſtaceous. A ſilver ſtripe on each ſide of the head and thorax, and along the poſterior thighs.

TRUXALIS VITTATUS: capite prominulo teſtaceus capite thorace femoribuſque poſticis vitta laterali argentea. *Fab. Syſt. Ent. T.* 2. *p.* 27. 3.

Gryllus vittatus has not been figured by any author. A ſingle ſpecimen of it has been recently brought from China, and is in the poſſeſſion of Mr. Francillon.

GRYLLUS GRYLLOTALPA.

MOLE CRICKET.

Achetæ.

SPECIFIC CHARACTER.

Wings much longer than the elytra, and when folded, appear like tails. Anterior pair of feet palmated.

GRYLLUS GRYLLOTALPA: alis caudatis elytro longioribus, pedibus anticis palmatis.
Linn. Syſt. Nat. 2. 693. 10.

This differs in no reſpect from the European ſpecies of the ſame name, except in ſize and colour. The Mole Cricket of this country, for example, being twice as large, and more of a mouſe colour. Mr. Abbot has ſent us a variety ſimilar to the Chineſe ſort, but of a darker colour, from North America.

GRYLLUS ACUMINATUS.

Tettigoniæ.

SPECIFIC CHARACTER.

Thorax roundiſh, emarginated. Vertex ſubulated, or awl ſhaped. Wings greeniſh, and of equal length.

GRYLLUS ACUMINATUS. *Linn. Syſt. Nat.* 2. 696. 23.
Locuſta Acuminata: thorace rotundato utrinque emarginato, vertice ſubulato, alis vireſcentibus æqualibus.
Fab. Ent. Syſt. T. 2. *p.* 39. *Sp.* 22.

Inhabits China and every other part of India.

HEMIPTERA.



* *Locusta perspicillata.* ** *Locusta acuminata.*

London Published as the Act directs by E. Donovan August 21 1798.





Gryllus flavovirens *Gryllus Gryllotalpa.*

London Published as the Act directs by E. Donovan October 1.1798.



Gryllus morbillosus.

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GRYLLUS PERSPICILLATUS.

SPECIFIC CHARACTER.

Thorax deflexed. Wing caſes concave, green: a proceſs at the baſe of each that fold one over the other; the lower one tranſparent, or glaſſy: upper one coriaceous.

LOCUSTA PERSPICILLATA: thorace deflexo, elytris concavis viridibus: baſi ocello dorſali feneſtrato. *Fab. Ent. Syſt.* 2. *p.* 36. 10.

Fabricius erroneouſly deſcribes this as a native of America. It is not figured elſewhere.

GRYLLUS FLAVICORNIS.

Locuſtæ.

SPECIFIC CHARACTER.

Upper part of the thorax carinated or keeled, green, without ſpots. Baſe of the wings red. Poſterior thighs red, with yellow teeth.

GRYLLUS FLAVICORNIS: thorace ſubcarinato viridis elytris immaculatis, alis baſi rufis, tibiis poſticis ſanguineis flavo ſerratis. *Fab. Ent. Syſt. T.* 2. *p.* 52. 23.

Deſcribed by Fabricius; but not figured. It is abundant in China.

GRYLLUS MORBILLOSUS.

SPECIFIC CHARACTER.

Thorax ſquare, warted, bright red. Wing caſes fuſcous, with white ſpots. Wings red.

GRYLLUS MORBILLOSUS: thorace quadrato verrucoſo rubro, elytris fuſcis albo punctatis, alis rufis. *Linn. Syſt. Nat.* 2. 700. 38.

The Gryllus morbilloſus appears in the early addition of the *Syſtema Naturæ,* and the works of Roeſel, as an Indian ſpecies: Mr. Drury aſſures us he has received it ſeveral times from China. Another ſort is

alſo found at the Cape of Good Hope, which is rather larger and deeper in colour than the Chineſe variety.

When this inſect is at reſt, the wings are folded, and much of its beauty is concealed: but when theſe are expanded, its appearance is altogether magnificent. It has nothing of the ſhining and metallic ſplendour of the Coleopteræ, for its colours are tranſlucent, and aſſume their richeſt hues when they paſs before the light. The elytra are purple, variegated with yellow: the wings of a glowing crimſon, ſpotted with black. The abdomen is ſurrounded with alternate zones of black and yellow, and the legs are throughout of an elegant ſcarlet, inferior only in brightneſs to the coral red of the head and thorax. Upon the whole, this ſpecies is embelliſhed with ſuch a profuſion of various and beautiful colours, that it may be conſidered as a moſt ſplendid example of the Hemipterous order of inſects. It is repreſented on the *Iris Chinenſis* in a flying poſition.

This is not ſuppoſed to be a numerous ſpecies in China; on the contrary, it is probably uncommon. Several others of the locuſt are abundant in that country, and in ſeaſons favourable to their increaſe, do incredible miſchief [k]. Both the Gryllus tartaricus, and Gryllus migratorius, inhabit Tartary on the northern confines of China, from whence, at certain periods, they deſcend like an impetuous torrent over the neighbouring countries in queſt of food, ſtrip the earth of verdure, and ſcarcely leave the veſtige of vegetation behind them. The Gryllus migratorius, whoſe myriads are ſaid to darken the face of heaven in their flights, ſometimes direct their courſe weſtward; croſs rivers, ſea, and an immenſe extent of country, till they reach Europe; and though many are loſt in theſe bold migrations, the ſurvivors are in ſufficient numbers to commit vaſt depredations. This ſpecies has been known to viſit England [l], but not in any abundance. In Little Tartary, and the European provinces of Turkey: in Italy, and in Germany [m], they do great miſchief in theſe migrations. The Gryllus flavicornis and naſutus, are two other abundant ſpecies in China, and no doubt there are many other common kinds in that country we are at preſent unacquainted with. The locuſt is only detrimental when in immenſe numbers, for in China, as in other eaſtern countries, they are conſidered as an article of food, and regularly expoſed for ſale in the public markets [n].

[k] "Famines ſometimes happen in this part of the province. In ſome ſeaſons inundations, produced by torrents from the mountains, and as often the depredations of locuſts are cauſes of this diſaſter." *Vide Sir J. Staunton, Chap. on Tien-sing.*

[l] The laſt appearance of this ſpecies in England was in 1748. We have a ſpecimen of it from Smyrna, Germany, and China, and deem it too common and general an inhabitant to merit a figure as a Chineſe inſect.

[m] Roeſel ſpeaks of this locuſt infeſting the provinces of Wallachia, Moldavia, and Tranſylvania, in ſuch immenſe numbers, in the years 1747, 1748, and 1749, that an *Imperial and Royal Hungarian edict* was iſſued, with printed inſtructions for the beſt means of exterminating them. *Vide Der Heuſchrecken-und Grillenſammlung, &c. &c. Vol. II. page* 193.

[n] Sir G. Staunton likewiſe ſpeaks of "a large ſpecies of Gryllus" that is kept in cages for amuſement in China, and was expoſed for ſale, with other inſects, in the ſhops of Hai-ten. Neither the ſpecies of this, or the locuſts noticed in the preceding chapter, are mentioned.



Fulgora Candelaria ♀.

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FULGORA CANDELARIA.

CHINESE LANTERN-CARRIER.

GENERIC CHARACTER.

The forehead elongated. Antennæ below the eyes: conſiſt of two articulations. The beak, or roſtrum, is bent inwards under the body.

SPECIFIC CHARACTER AND SYNONYMS.

Trunk curved upwards towards the end. Shells green with yellow marks. Wings yellow, black at the tips.

FULGORA CANDELARIA: fronte roſtrata adſcendente, elytris viridibus luteo maculatis, alis flavis apice nigris.

Linn. Syſt. Nat. 2. 703. 3. *Fab. Ent. Syſt. t.* 4. *p.* 2. *ſp.* 4.

Der Fleinere Aſiatiſche oder Chineſiſche Lanternen-Trager. Roeſ. Inſ. 2. *Gryll.* 189. *tab.* 30.

Acta Holm. 1746. 63. *tab.* 1. *fig.* 5, 6.

De Geer Inſ. 3. 197. 2.

Edw. Av. tab. 120.

Sulz. Inſ. tab. 10. *fig.* 62.

De Gewapende Cicade. La Cigale armée. Stoll. Cicad.

The phenomena reſulting from the properties and effects of light, having engaged the attention of the earlieſt philoſophers, we muſt conclude, that phoſphorical appearances, and thoſe eſpecially of animated bodies, could not fail to attract their particular notice. Indeed it is evident, from the writings of the accurate obſervers of nature in remote ages, that they were acquainted with certain inſects that have the property of ſhining in the night. Theſe were known only by general terms, expreſſive of that property; yet it is probable that ſome of the Linnæan lampyrides, which are abundant in the ſouth of Europe, as well as in Aſia, and ſome parts of Africa, were the firſt of the illuminated inſects known to them[a]. Some of the males which are furniſhed with wings, and are illuminated like the females, were ſtriking objects of natural hiſtory, and could ſcarcely have eſcaped their notice. The Greeks included all ſhining inſects under the name lampyris; and the Latins called them cicindela, noctiluca, luciola, lucernata, &c. Whether any of the *Fulgoræ* were known to the ancients is uncertain: probably they were not, the moſt remarkable ſpecies being peculiar to the warmeſt parts of America. Aſia, once the ſeat of learning, does indeed produce a few ſpecies; but we have no account of theſe in ancient natural hiſtory.

[a] The lampyris of *Pliny* is expreſsly the inſect with a ſhining tail.

The Fulgoræ ſeem to have been entirely unknown in Europe till the latter end of the laſt century; when two writers publiſhed deſcriptions and figures of *Fulgora Lanternaria.* Madame Merian, of Holland, in her ſplendid work on the Metamorphoſis of the Inſects of Surinam, and Dr. Grew, of London, in his Rarities of Greſham College.

Reaumur [b] is the next author who deſcribed the *Fulgora Lanternaria,* and after him Roeſel, in his "Amuſing Hiſtory (or recreation) of Inſects [c]." This brings us to the period in which *Fulgora Candelaria,* our Chineſe ſpecies, was firſt known in Europe: a circumſtance of much importance to naturaliſts at that time, becauſe the firſt mentioned ſpecies was a ſolitary example of its ſingular genus. The tranſactions of the Stockholm academy includes the earlieſt figure and deſcription of this extraordinary inſect; from theſe Linnæus deſcribed it in his *Syſtema Naturæ*; but his arrangement has undergone many alterations ſince that time. At firſt he included it among the Coleopterous inſects; then he called them Lanternariæ; and again, they were claſſed with the Cicadæ. Theſe have been ſince corrected, and a new genus formed of inſects with elongated trunks on their foreheads excluſively, under the name Fulgora, a name that has been adopted by later authors, and finally by Fabricius.

Roeſel has given three figures and a deſcription of the *Fulgora Candelaria*; from his account we learn that it was known in England before he was acquainted with it. On its peculiar qualities, he obſerves he muſt be entirely ſilent, becauſe he had been unable to derive any information concerning it; his deſcription is notwithſtanding extremely prolix, and occupies four quarto pages; as he notices every trifling particular of the ſpots, colours, &c. of the inſect. We have ſelected the moſt intereſting paſſage, becauſe it clearly marks the progreſſive advancement of the knowledge of natural hiſtory in Europe, ſo late as the middle of the preſent century.

"According to my promiſe," ſays Roeſel [d], "I now produce the ſecond ſort of Lantern-carrier, which I never ſaw before; and of which I have never read in any work on inſects. The ſcarcer however it may be, the more I am indebted to Mr. Beurer, apothecary of this place [e], &c. for the permiſſion he has granted me to draw and enrich my collection with it. Mr. Collinſon has ſent it to him from London, under the name Lanternaria Chinenſis, for which reaſon I have called it the Aſiatic or Chineſe Lantern-carrier." Roeſel being a reſpectable entomological writer of his time, we muſt infer that *Fulgora Candelaria* was extremely ſcarce in Europe when his plate and deſcriptions were publiſhed. The commercial concerns of Europeans with the Chineſe having greatly increaſed ſince that period, has facilitated many inquiries concerning the natural productions of China; and amongſt a variety of other inſects that are now uſually brought from that country, ſpecimens of Fulgora Candelaria are not uncommon. In China few inſects are found in greater abundance.

[b] Memoires pour ſervir a l'Hiſtoire des Inſectes. 1734.

[c] Inſecten Peluſtigung.

[d] Verſprochener maſſen liefere ich nunmehr die zwente Sorte des Lanternen-Tragers, &c. Vol. 1. pl. 30. Locuſt, page 189.

[e] Nurenberg.

The authors who have figured or deſcribed the Chineſe Fulgora, ſince Roeſel, are De Geer[f], Seba[g], Sulzer[h], and our countryman Edwards[i]. De Geer gives a very conciſe deſcription, and no figure; and Seba merely obſerves, in his deſcription of Fulgora Candelaria, "La Chine produit une autre eſpéce du même genre mais beaucoup plus petite et toute differente." Edwards has given a figure of it in one of the plates in his work of Birds. His deſcription is certainly unintereſting[k].

Having noticed the ſeveral authors who have treated on this inſect, we come to conſider the peculiar properties of its ſingular genus; and among theſe we find the moſt aſtoniſhing that inſects can poſſeſs, that of emanating light: not merely a momentary ſhining appearance, as is produced by many viſcous ſubſtances, but a clear and conſtant reſemblance to the element, fire; and capable of diffuſing light to ſurrounding objects, though totally deſtitute of every principle that can do miſchief. To the unphiloſophical mind it appears at firſt impoſſible, and it cannot fail to aſtoniſh the beſt informed. Indeed, ſome readers might be inclined to doubt the veracity of travellers in foreign countries, who have ſeen a vegetable[l] or an animal produce light, if our own country could not ſupply us with abundant analogous proofs of ſuch phænomenæ. The preſence of this animated phoſphorus, if we may ſo expreſs it, is obſerved on ſeveral inſects that are natives of England: it is needleſs to enumerate them, becauſe the moſt ſtriking example muſt be recollected by every rural inhabitant, or admirer of poetical ſimplicity.

——————— "On every hedge
"The glow-worm lights his gem, and thro' the dark
"A moving radiance twinkles." THOMSON.

The account which Madame Merian gave of the effect of the light produced by the *Fulgora Lanternaria*[m] was greatly diſcredited, though Dr. Grew had related ſome ſurpriſing particulars of a ſpecimen of it

[f] De Geer. Hiſtoire des Inſectes. 1752.

[g] Seba. Theſaurus Naturæ. 1765.

[h] Kenwzeichen der Inſecten (Characteriſtics of Inſects). 1761.

[i] Edwards's Birds, 4to. London, 1743.

[k] "I take it to be a kind of fire-fly, and that part on the head the lantern. The wings are all flat, and the upper ones hard and ſmooth, like thoſe of the *Beetle* or *Scarabæi* kind, of which it is a ſpecies." *Edwards.*

[l] An inſtance of this occurs in the ſouth of Europe. An account in the Philoſophical Tranſactions relates of the Dictamnus Albus (Fraxinella), that "in the ſtill evenings of dry ſeaſons it emits an inflammable air, or gas, and flaſhes at the approach of a candle. There are certain inſtances of human creatures who have taken fire ſpontaneouſly, and been totally conſumed."

[m] The account which Madame Merian has given of the light of the *Fulgora Lanternaria* is ſo ſurpriſing, that it will certainly prove acceptable to many readers. It is indeed a digreſſion from the account of *Fulgora Candelaria*, but will tend to prove, that inſects of this genus emit a more vivid light than any of the illuminated kinds hitherto known.

"Once," ſays Madame Merian, "when the Indians brought me a number of theſe Lantern carriers, I put them into a wooden box, without being aware of their ſhining at night; but one night, being awakened by an unuſual noiſe, and much frightened, I jumped out of bed, and ordered a light, not knowing whence this noiſe proceeded. We ſoon perceived that it originated in the box; we opened with ſome inquietude, but were ſtill more alarmed, after opening it, and letting it fall on the ground, for a *flame* appeared to iſſue from it, which ſeemed to receive additional luſtre, as often as another inſect flew out of it. When we obſerved this ſome time, we recovered from our terror, and admired the ſplendour of theſe little animals." *Diſſert. de generatione et metamorphibus Inſectorum Surinamenſis.*

from Peru [n]. Her account has, however, been generally believed, ſince the miſſionaries [o] in countries which produce thoſe inſects have confirmed her account. It is admitted, that the *Chineſe Fulgora* has an illuminated appearance in the night. "The foreheads of many Fulgoræ (eſpecially thoſe found in China) emit a lively ſhining light in the night time, which, according to ſome authors, is ſufficient to read by."—*Yeats* [p].

The light of the Fulgoræ is generally imagined to iſſue from the trunk, or elongated projection of the forehead; but Roeſel offers a conjecture on the light of the Fulgora Lanternaria, which, on further inveſtigation, may enable naturaliſts to determine whether the light is entirely produced by an innate property of the trunk, or receives additional ſplendour from ſome external cauſe. He notices a white farinaceous ſubſtance on ſeveral parts of the wings and body, as well as the trunk, which, he obſerves, looks like the decayed wood which ſhines at night. We mention this conjecture of Roeſel, though the ſame occurred to us before we peruſed his obſervations. We have invariably found a ſimilar white powder on other inſects of this genus, but uſually upon the trunk only. The remarks of Roeſel were neceſſarily very limited, two ſpecies of the Fulgoræ only being then known. We poſſeſs twelve diſtinct ſpecies, and have made diſſections and obſervations on ſeveral others; from all which we are inclined to imagine, that the white powder has a phoſphoric appearance in the living inſect, and increaſes the light, when the end of the trunk is illuminated.

One of the Fulgoræ of conſiderable magnitude, from the interior of India, enabled us to make many obſervations. The trunk is of the ſame form as that of the *Fulgora Candelaria*. The colour is a dark but beautiful purple: the apex ſcarlet, of a perfectly pellucid appearance, and ſtill retains a reddiſh glare. The ſpots of white, ſprinkled on the purple colour of the trunk, exhibit alſo a ſlight appearance of phoſphoric matter. On the trunk of the Fulgora Candelaria theſe white ſpots are very conſpicuous.

Though the generic name Fulgora ſeems to imply ſome effulgent property in the inſects that compoſe the genus, it is uncertain whether all poſſeſs that property. They are indeed furniſhed with a trunk, but it is ſmaller in proportion, in ſeveral ſpecies, than in F. Lanternaria, Candelaria, Flammea, Phoſpho-

[n] Cucujus Peruvianus.

"That which, beſide the figure of the head, is moſt wonderful in this inſect, is the ſhining property of the ſame part, whereby it looks in the night like a lantern, ſo that, two or three of theſe faſtened to a ſtick, or otherwiſe conveniently diſpoſed of, will give ſufficient light to thoſe who travel or walk in the night." *Grew. Muſeum Regalis Societatis, p.* 158.

[o] Le ver-luiſant. Ceux que nous voyons à la campagne dans les nuits d'été ne jettent qu'une foible lueur: mais ils y en a dans les Indes modernes qui répandent un éclat très-vif. Ce ſont, pour ainſi dire, des phoſphores animez. "Les Indiens, dit le ſavant auteur de la Théologie des inſectes, "ne ſe ſervoient autrefois dans leurs maiſons, et dehors d'aucune autre lumiere. Lorſqu'ils marchent de nuit, ils en attachent deux aux gros doigts du pied, et en portent un à la main. Ces inſectes répandent une ſi grande clairté, que par leur moyen on peut lire, écrire, et faire dans une chambre toutes les autres choſes néceſſaires." *Leſſer Liv.* 2. *c.* 3. *rem.* 8. Le trait rapporté par le P. DU TERTRE dans ſon *Hiſtoire des Antilles*, auroit bien dû être cité il dit avoir lû ſon breviare à la clarté d'un de ces vers-luiſans.

[p] Yeats. Inſtitutions of Entomology.

rea, and ſome others. It has not been determined whether any of the European Fulgoræ ſhine in the night time. The genus is very limited, including the diſcoveries of modern naturaliſts. Fabricius deſcribes only twenty-five ſpecies; of theſe, ſeven are European, and eighteen extra-European. Two ſpecies are found in England.

Chryſanthemum Indicum.—Indian Chryſanthemum.

This is a very lately introduced ſpecies in England. It is mentioned by Sir G. Staunton among the plants collected in the provinces of *Shan-tung* and *Kiang-nan*. Thunberg deſcribes it as a native of Japan in the *Flora Japonica*. A variety of it is figured in the *Hortus Malabaricus*; and in the *Herbarium Amboinenſe* is another. We obſerve a great diſſimilarity between the figures of this plant in different works. That figured in the *Herb. Amb.* has very ſmall flowers, ſcarcely broader than our large daiſy [q]: the leaves in cluſters, ſome very large, and others ſmall. In the *Hort. Malab.* the flowers are twice the ſize of the former, and the leaves are placed much aſunder. The flowers of our ſpecimen are conſiderably larger than either of theſe; yet not of the magnitude repreſented in the plate of Mr. Curtis's Botanical Magazine.

This Chryſanthemum is not peculiar to China, though it has been long cultivated in that country. It grows ſpontaneouſly in ſome parts of Japan; and from the name it bears in the Arabic, Perſic, and other languages, is probably known in moſt parts of Aſia.

[q] *Chryſanthemum Leucanthemum.*

CICADA SANGUINEA.

RED AND BLACK CHINESE FLEA-LOCUST.

GENERIC CHARACTER.

Roſtrum bent under the breaſt. Antennæ ſetaceous. Wings four, membranaceous, declining along the ſides of the body.

SPECIFIC CHARACTER AND SYNONYMS.

Dark brown. Abdomen ſanguine red; two ſpots of the ſame colour on the thorax.

Cicada Sanguinea alis ſuperioribus fuſcis, fronte abdomine thoraciſque maculis binis ſanguineis. *De Geer Inſ.* 3. 221. 18. *tab.* 33. *fig.* 17.

Tettigonia Sanguinolenta nigra ore thoracis maculis duabus abdomineque ſanguineis. *Fab. Spec. Inſ.* 2. 321. 19. *Ent. Syſt.* 4. *p.* 25. 32.

La Cigale Choinoise a taches rouge de ſang. *Stoll. Cicad. tab.* 13. *fig.* 62.

Fabricius refers to the cabinet of Mr. Drury of London for a ſpecimen of this rare inſect. The authors who have given figures of it are De Geer, a French entomologiſt, and Stoll, in a work lately publiſhed on the continent, including Cimices and Cicadæ. The Cicada ſanguinolenta of Linnæus being common in Europe, the ſimilarity of names might create confuſion, were we not to notice it. Our ſpecies is a Cicada of Stoll, as well as of De Geer, which latter author we have followed in the ſpecific name. Fabricius having ſeparated the Linnæan Cicadæ into ſeveral genera, this ſpecies will be found in his Entomologiæ Syſtematica under the name *Tettigonia ſanguinolenta.*



Cicada. Grata.

London Published as the Act directs by E. Donovan Sept.r 1.1798

CICADA ATRATA.

GREAT BLACK CHINESE FROG-HOPPER.

SPECIFIC CHARACTER.

Black; wings white, black at the baſe; veins yelloviſh brown.

TETTIGONIA ATRATA: atra alis albis baſi nigris: venis teſtaceo. *Fab. Ent. Syſt.* 4. 203. 28.

Though the obſervations that Sir G. Staunton has made on the natural production of China, in his late publication, were neceſſarily very general, the ſcience of inſects appears to have engaged his particular attention; and on that account we muſt lament, that untoward events, precluded him from obſerving more minutely, the peculiarities of ſome kinds, and the economical purpoſes of others.

In the general hiſtories of unknown countries, (and we can ſcarcely conſider China in any other view) the entomologiſt muſt expect to find his favourite ſcience neglected, or treated in a manner more likely to excite curioſity than reward enquiry. The work of this learned writer is an exception to our remark; though a few inaccuracies occur in it. We peruſe the following account of an unknown ſpecies of Cicada with particular regret, becauſe, it withholds information intereſting to the naturaliſt, and, from its air of novelty, is likely to promote an erroneous opinion concerning that ſingular tribe of inſects.

" The low and ſometimes marſhy country, through which the river [a] paſſes, is favourable to the production of inſects; and many of them were troubleſome, ſome principally by their ſting; and others by their conſtant ſtunning noiſe. The muſic emitted by *a ſpecies of Cicada* was not of the vocal kind; but produced by the motion of two flaps or lamellæ which cover the abdomen or belly of the inſect. It is the ſignal of invitation from the male of *that ſpecies* to allure the female, which latter is quite unprovided with theſe organs of courtſhip [b]."

Again, when deſcribing a town higher up the river, that author ſays, " The ſhops of Hai-tien, in addition to neceſſaries, abounded in toys and trifles, calculated to amuſe the rich and idle of both ſexes, even to cages containing inſects, ſuch as the *noiſy Cicada*, and a large ſpecies of the Gryllus [c]."

The reader may imagine from the firſt account, that the muſic of every other ſpecies of Cicada is of the

[a] Pei-ho. [b] Chap. 3. Vol. II. octavo. [c] Chap. 4. Vol. II.

vocal kind, or that it is peculiar to this Chineſe inſect to be furniſhed with lamellæ that cauſe a ſound. The latter account confirms ſuch conjecture, by alluding in a ſpecific manner to the *noiſy Cicada*, as to an inſect deſcribed in a former part of the work. We muſt remark, that not only the males of the ſpecies mentioned by that author, are furniſhed with thoſe lamellæ, but the whole of that ſection of the Linnæan Cicadæ which Fabricius has called Tettiogonia [d]. The males of the ſpecies included in the other ſections of that genus are certainly furniſhed with them alſo; though ſome of them are too minute to be obſerved without a glaſs. Theſe lamellæ vary in ſize in different ſpecies; but the accounts we have of them from travellers in foreign countries, and naturaliſts both ancient and modern, prove they all emit a certain ſound to allure the female. As we are unable to aſcertain the Chineſe ſpecies Sir George mentions, neither figure or deſcription accompanying his account of it, we muſt therefore, ſpeak generally of the whole genus, and then confine our remarks to thoſe ſpecies we are acquainted with from China. Among theſe are C. *ſpendidula*, *ſanguinea*, and *atrata*. The latter, we believe, is the largeſt ſpecies of the Chineſe Cicadæ known in Europe.

Some ſpecies of this tribe were known to the ancients. With them it was the emblem of happineſs and eternal youth [e]; and if we examine the legends of pagan mythology, we find they were deemed a race of creatures beloved by gods [f] and men. The Athenians wore golden Cicadæ in their hair, to denote their national antiquity; or that like thoſe creatures they were the *firſt born* of the earth; and the poets feigned that it partook of the perfection of their deities [g]. Anacreon depictures in glowing colours the uninterrupted felicity of this creature: his ode to the Cicada is appropriate to our enquiry [h].

[d] This includes all the larger ſpecies of Linnæan Cicadæ, ſuch as *C. Orni, Tibicien, reticulata, hæmatodes, ſtridula*, &c. &c. for in ſome editions of the Syſtema Naturæ of Linnæus we find *Cicada Noctilucæ*, which in later editions are the *Fulgoræ*, and alſo the *C. cruciatæ, mannifera, ſpumantes* and *deflexæ* included in one genus.

[e] Probably becauſe it was ſuppoſed to live only a ſhort time. The renewal of youth is illuſtrated by the ſtory of the Tithonus transformed by Aurora into a Cicada.

[g] Theſe pagan deities were without fleſh or blood, and compoſed of aerial and watery humours. Such they imagined the moiſture of the Cicada, and perhaps for that reaſon firſt aſſigned it a place among their demi-gods.

[h] Happy creature! what below
Can more happy live than thou?
Seated on thy leafy throne,
(Summer weaves the verdant crown,)
Sipping o'er the pearly lawn
The fragrant nectar of the dawn;
Little tales thou lov'ſt to ſing,
Tales of mirth—an inſect king:
Thine the treaſures of the field,
All thy own the ſeaſons yield;
Nature paints for thee the year,
Songſter to the ſhepherds dear:
Innocent, of placid fame,
What of man can boaſt the ſame?
Thine the laviſhed voice of praiſe,
Harbinger of fruitful days;
Darling of the tuneful nine,
[f] *Phœbus* is thy ſire divine;
Phœbus to thy notes has giv'n
Muſic from the ſpheres of heav'n:
Happy moſt, as firſt of earth,
All thy hours are peace and mirth;
Cares nor pains to thee belong,
Thou alone art ever young;
Thine the pure *immortal* vein,
Blood nor fleſh thy life ſuſtain;
Rich in ſpirits—health thy feaſt,
Thou'rt a demi-god at leaſt. GREEN's *Tranſl. Ode* 43.

In the infant ſtate of muſic, men, ſeem to have preferred the natural ſounds of ſome animals, to thoſe of their uncouth inſtruments. We cannot otherwiſe account for the extravagant praiſe, beſtowed on the noiſe of this little creature. It is true, authors agree that the ſounds of ſome kinds are exceeding loud and harmonious, and in the early ages of the world theſe might have a powerful influence on the human mind. It is related that the *ancient Locri*, a people of Greece, were ſo charmed with the ſong of the Cicada, that they erected a ſtatue to its honour [i].

The ancients had attentively obſerved the manners of its life, though they indulged in many poetical fictions concerning it; and particularly, when they affirmed that it ſubſiſted on dew. They have told us that it lives among trees [k], which circumſtance diſcountenances the opinion of thoſe moderns, who imagine the graſhoppers [l] were the Cicadæ of the ancients.

Neither were they ignorant that the males only were furniſhed with thoſe inſtruments which externally appear to produce its ſound, or the purpoſe for which that ſound was emitted [m]; though it was reſerved for more accurate naturaliſts to diſcover the complex organs by which it was cauſed and modulated. Aldrovandus, near two centuries ago, deſcribed the lamellæ, which he compares to the fruit of ſome herbs, called by modern botaniſts *Thlaſpi* [n].

Among later naturaliſts who have noticed the Cicadæ of foreign countries are Merian [o], Margravius [p], &c. Merian ſays, its tune reſembles the ſound of a lyre, which is heard at a diſtance; and that the Dutch in the

[i] Some ſay that once a certain player of *Locri*, conteſting in the art of muſic with another, would have loſt the victory, by the breaking of two ſtrings of his inſtrument; but a *Cicada* flew to his aid, and reſting on the broken inſtrument, ſung ſo well, that the Locrian was declared victor. The Locrians erected a ſtatue to the Cicada as a teſtimony of their gratitude. It repreſented the player with the inſect on his inſtrument.

[k] Dr. *Martyn* ſuppoſed this refers to the ſmaller branches in hedges, rather than to the lofty trees in foreſts: we cannot entirely coincide with that opinion.

[l] *Graſhopper. Cicada.* They live almoſt every where in hot countries. *Lovel. Hiſt. Animal.* containing the ſumme of all authors ancient and modern, *p.* 274, *&c. &c.*

Cicada, a Sauterelle*, or, according to others, a *balm cricket.*—Non eſt quod vulgò, a *graſhopper*, vocamus; ſed inſectum longè diverſum, corpore et rotundiore et breviore, qui arbuſculis inſidet et ſonum quadruplo majorum edit. a *graſhopper*, rectè *locuſtum* reddideris, *Morl* ex *Ray. Ainſworth.*

[m] Xenarchus, an old Grecian play-writer, uſed to ſay jocoſely that "the Cicadæ were very happy becauſe they had ſilent wives." Ariſtotle alſo knew the ſexual difference of them; he mentions them as a delicious food: he preferred the males when young, but more ſo the females before ſhe laid her eggs.

[n] Thalaſpi parvum Hieraciifolium, ſive Lunariam luteam Monſpel. et Leucoium luteum marinum. *Lobel. Stirpium Adverſaria nova, p.* 74.—*Aldrov.*

[o] Merian. Inſecta Surinamenſia.

[p] Georgi Margravii rer. nat. Braſiliæ. *Lib.* 7. *p.* 257.

* *Sauterelle*, ſorte d'inſecte. A locuſt or graſhopper. *Boyer.*——*Cigale*, a flying inſect. The Cicada of the ancients, unknown in England. *Boyer.*

plantations of Surinam (where they are very plenty) call it the Lyre-player [q]. Margravius, in his natural hiſtory of Braſil, compares it to the ſound of a vibrating wire: he ſays the tune begins with *Gir, guir,* and continues with *Sis, ſis, ſis.* One ſpecies is called Kakkerlak [r] in the Indies, perhaps becauſe the ſound emitted by it may be likened to the pronunciation of that word. Mr. Abbot, an accurate obſerver and collector of natural hiſtory in *North America,* has diſcovered four new ſpecies of Cicada, one of them nearly equal in ſize to our Cicada Atrata. This, he ſays, was found in great abundance one ſeaſon, in ſome ſwampy grounds near Suſquehanna river, and was remarkable on account of their loud noiſe, which at a little diſtance reſembled the ringing of *horſe-bells* [s].

Some naturaliſts have ſuppoſed that the ſound of the Cicada, is cauſed by the flapping of the lamellæ againſt the abdomen; and others, that it is only a noiſe occaſioned by the ruſtling of the ſegments of the body in the contractile motion of that part. Beekman [t] imagines it is cauſed by beating the body and legs againſt the wings: he has endeavoured to explain the meaning of ancient authors, and deduce its etymology from that circumſtance [u].

Reaumur and Roeſel have diſſected ſeveral of the Cicadæ, and diſcovered that the lamellæ cannot have that free motion neceſſary to cauſe ſuch a ſound; but that it is produced by ſome internal organs of the inſect, and only iſſues through the opening, concealed under the lamellæ, as through the mouth of a muſical inſtrument [x].

The ſuppoſitions of theſe authors ſeem well founded; we have examined many ſpecies that were unknown to them, and find the ſpine before mentioned, ſo placed in many inſects, as to prevent the motion

[q] De Lierman. [r] *Scopoli carn.* Yeats deſcribes the Kakkerlak of the American iſlands as a ſpecies of *Blatta,* cock-roaches. Are there not two inſects of that name?—one of them is, we believe, a *Blatta.*

[s] Communicated by Mr. Abbot in North America to Mr. Francillon in London.

[t] *Roeſ. Inſecten Beluſtigung.*—CHRISTIANI BECKMANNI, Bornenſis, manuductionem ad latinam linguam: nec non de originibus latinæ linguæ, &c.

[u] It is the common opinion that the word *Cicada* has its origin from *quod cito cadat,* which, after a general interpretation, implies that the Cicadæ *ſoon vaniſh,* or are *ſhort-lived.* Beckman maintains that this opinion is abſurd, and proves that its name is derived from ſinging, becauſe ᾠδεῖν ſignifies a ſound produced by the motion of a little ſkin; and that *ciccum* or *cicum* is a thin little ſkin of a pomegranate, that parts the kernels.—Beckman not knowing the inſect, or not imagining that the *little ſkin* was an appendage to the abdomen, concluded it muſt mean the tranſparent wings, and conſequently that the ſound was produced by beating them againſt the body: but this interpretation, if applied to the lamellæ inſtead of the wings, will directly prove the origin of its name, and knowledge of the ancients.

[x] For the ſatisfaction of the curious reader, we detail the moſt intereſting particulars concerning the organization of theſe parts from *Reaumur's Hiſtoire des Inſectes,* and *Roeſel's Verſchiedene auſlaendiſche ſorten von Cicaden, &c.*

The muſic of the Cicada is not cauſed by the motion of the *lamellæ,* as ſome have ſuppoſed. Reaumur obſerves, that although the *lamellæ* have a kind of moveable hinge, they have alſo a ſtiff and pointed tooth, or ſpine, that prevents them from being lifted far back; and, if ſtrained, are very liable to be broken.

From the anatomical deſcription of Roeſel, we find that, within the two hollows that are ſeen when the lamellæ are lifted up, two very ſmooth ſkins are viſible; theſe are highly poliſhed, of nearly a ſemicircular ſhape, and reflect priſmatic colours: there is between theſe

of the lamellæ. We have a ſpecimen from America, which, in addition to the uſual organs of ſound, have two large hollow protuberances or drums; one on each ſide of the abdomen; and muſt, we imagine, produce a louder ſound than any yet diſcovered: a ſpecies very ſimilar to this is alſo brought from New Holland.

The proboſcis of thoſe inſects is a hard or horny tube, in which a very acute, ſlender ſucking-pipe is concealed. The horny tube is not unlike a gimlet in form, and is uſed by thoſe creatures to bore through the bark of trees, to extract the juices, on which it feeds. Linnæus has named the ſpecies of one diviſion in his Syſtem, *Mannifera,* becauſe they had been obſerved to fly among aſh trees, bore many holes in them, and when the manna had oozed out, return and carry it off.

With this proboſcis they bore holes in the ſmall twigs of the extreme branches of trees, and depoſit their eggs in them, ſometimes to the amount of ſix or ſeven hundred. As each cell contains no more than from twelve to twenty eggs, it does great damage to the trees they frequent. Stoll ſays, "the common one [y], which is found at Surinam in the coffee plantations, greatly injures thoſe trees; the females depoſiting their eggs in the young ſhoots, and in holes they bore with their ſheath. They live on the juices of the trees."

a hard brown projection, or corner which unites with another piece above them in a longitudinal direction, to the under part of the breaſt. This longitudinal piece divides a triangular red ſpace or field into two parts, one on the right ſide, and the other on the left. Above theſe, in a tranſverſe direction, is ſeen two ſmall yellow ſkins; the lamellæ in their natural poſition conceal theſe organs becauſe they fold exactly over them.

Reaumur, in the exterior appearance of theſe parts, could diſcover nothing that could lead to determine the organs of the ſound; and he was not ſatisfied that the ſlight motion of the lamellæ on theſe parts could produce the loud ſinging noiſe of the Cicada. He opened a few cicadæ on the back part of the body, ſo that the inner ſtructure of the under ſide was diſplayed, and eſpecially the parts connected to the curious organs he had diſcovered under the lamellæ. At laſt he diſcovered two large muſcles, which at their point of union formed a ſpace almoſt ſquare, and were connected with the red triangular fields he had obſerved on the under ſide: as he concluded theſe formed a material part of the organs he wiſhed to diſcover, he examined them attentively, and found that, by moving them backwards and forwards, he could make a cicada ſing that had been dead many months. Although the ſound was not ſtrong, it tended to prove that he had diſcovered the inſtrument that produced it.—In another part he ſays it is evident the ſound is cauſed by the little ſkins connected to the muſcles, becauſe when they were rubbed with a bit of paper they emitted that kind of ſound.

Roeſel has diſcovered two little pieces of horny ſubſtance that are connected by a ſort of fibre within the ſkins, in the body, and he ſuppoſes when this is in motion, it ſtrikes againſt the before-mentioned thin ſkins, and produces a ſound, by the ſame means as a hollow body, or drum, when ſtruck with a ſtick: and alſo that this noiſe may be varied or modulated by a ſlight motion of the lamellæ, but cannot be produced without the aſſiſtance of the internal nerves and muſcles connected with the organs firſt deſcribed.

Authors agree that the Cicadæ of hot countries emit the loudeſt ſound. It appears from the papers of Mr. Smeethman (who reſided a conſiderable time in Africa) publiſhed by Mr. Drury, that the ſound of ſome kinds peculiar to that part of the world is ſo loud as to be heard at half a mile diſtance; and that the ſinging of one within doors, ſilences a whole company.—The ſame attentive obſerver ſays, the open parts of the country are never without their muſic, ſome ſinging in the evening and others only in the day.

[y] La Cigale Vieilleuſe. Cicad. Tibicien.

M. Merian gives a figure and account of the metamorphoſe of a cicada found in Surinam. She has miſtaken the winged inſect to be only the pupa of the *Fulgora Lanternaria,* which is too abſurd to deſerve contradiction; in other reſpects her account is intereſting, and particularly that part which relates to the pupa ſtate, or chafer, as it is termed. "The pomegranate tree," ſays Merian, "ſo well known in all other countries, grows alſo in the fields of Surinam. On them I have found a ſpecies of chafer, which is naturally very lazy, and conſequently very eaſy to be caught. It carries underneath the head a long trunk, with which it eaſily penetrates the flowers, in order to extract the honey from them. On the 20th of May, when they were laying quite quiet, the ſkin of the back burſt open, and green flies, with tranſparent wings, iſſued from them. Theſe flies are found in abundance in Surinam, and have ſuch a rapid flight, that it took me many hours to catch one."

The pupa we received from China with our Cicada atrata, very much reſembles that figured by Merian. It has the long ſucking trunk or proboſcis; but the moſt formidable of its weapons ſeem to be the fore feet, which are thick, ſtrong, and armed with ſpines or teeth; with theſe it may do more injury to the plants, by tearing off the tender ſhoots, than by wounding the trunk to extract the moiſture.

We have repreſented the upper and under ſide of a male of this intereſting ſpecies, Cicada atrata, not only to illuſtrate our preceding remarks, but becauſe we believe no figure has been given of it by any author, unleſs *De Zwarte Chineeſche cicade*[z] of Stohl is intended for this inſect. The Fabrician deſcription has no ſynonyms.

The general appearance of both ſexes of Cicada atrata is very ſimilar, except that the female is furniſhed with a ſheath, and the male with lamellæ. The ſheath of the female is partly concealed within a valve at the extremity of the abdomen, and is only protruded when the creature lays her eggs. In the figure of the under ſurface of a male inſect, exhibited in the annexed plate, the lamellæ are diſtinguiſhed by two ſtars: the ſingle ſtar denotes the ſituation of the ſpine, mentioned by Roeſel and Reaumur.

Laurus Camphora.—Camphor-tree.

The tree which produces the uſeful drug *camphor* is very abundant in Japan and China. Sir G. Staunton ſays it is the only ſpecies of the laurel genus growing in China, where it is a large and valuable timber, and is never cut up for the ſake of the drug; but that ſubſtance is obtained by decocting the ſmall branches, twigs, and leaves, and ſubliming the camphor in luted earthen veſſels. A purer ſort is brought from the iſland of Borneo and Japan, which is ſuppoſed to be a natural exudation from the tree when the bark is wounded. Sir G. Staunton ſays the Camphor-tree is felled in thoſe countries for the ſole purpoſe of finding the drug in ſubſtance among the ſplinters.

[z] La Cigale Chinoiſe noire, pres de Canton en Chine. Cab. de Monſ. *L. F. Holthuſen, pl.* 20. *fig.* 118.

HEMIPTERA.



Cicada sanguinea.
_____ ambigua.
_____ lanata.

Tettigonia splendidula.
Cicada abdominalis.
_____ frontalis.

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CICADA AMBIGUA.

SPECIFIC CHARACTER.

Olive colour. Wing caſes clear, anterior margin teſtaceous.

CICADA AMBIGUA: olivacea, elytris hyalinis, marginibus anticis teſtaceis.

Mr. Drury received this inſect from China. It is a ſpecies of ambiguous character, but appears to us undeſcribed. It is not noticed among the Tettigoniæ of Fabricius, in his laſt ſyſtematic arrangement of inſects.

CICADA LANATA.

SPECIFIC CHARACTER.

Wing caſes black at the ends; ſpotted with blue. Front and ſides of the head red. Abdomen tufted with wool or down.

CICADA LANATA: elytris apice nigris: punctis cœruleis, frontis lateribus rubris, ano lanato. *Linn. Syſt. Nat.* 2. 711. 42.
Fab. Ent. Syſt. T. 4. *p.* 30. 16.

One of the moſt beautiful ſpecies of the Indian Cicadæ. The wing caſes are black, elegantly reticulated, and ſpotted with bright blue. At the extremity of the abdomen it has a tuft of long and very delicate hairs, intermixed with others that are rather convoluted and of a coarſer texture. The whole of this inſect, but particularly between the abdomen and wings, is ſometimes profuſely covered with a fine powder of a ſnowy whiteneſs, ſimilar to that obſerved on the Cicada limbata in the imperfect ſtate; hence we may conclude it is alſo one of thoſe inſects, which furniſh the white wax [d] ſo highly eſteemed in China.

[d] Vide Sir G. Staunton's *Hiſt. Emb. China.*

TETTIGONIA SPLENDIDULA.

SPECIFIC CHARACTER.

Wing caſes brown, highly gloſſed with a golden tinge. Thighs of the fore pair of legs thick; armed with teeth: colour red.

TETTIGONIA SPLENDIDULA: elytris fuſco aureis, tibiis anticis incraſſato dentatis rufis. *Fab. Ent. Syſt. T.* 4. 25. 33.

The inſect added under this Fabrician character, is the ſame that author deſcribed from the cabinet of Mr. Drury, and to which he excluſively refers. We believe the ſpecimen is unique, at leaſt we have not ſeen it in any other collection; and it has not been figured in any preceding publication. In the Linnæan arrangement it muſt be placed in the Cicada genus.

CICADA ABDOMINALIS.

SPECIFIC CHARACTER.

Shining black, with two yellowiſh bands acroſs the wing-caſes. Abdomen blood red.

CICADA ABDOMINALIS: atra nitida elytris faſciis duabus flaveſcentibus. Abdomine ſanguineo.

An undeſcribed ſpecies; allied both to the *Cercopis cruentata* and *Cercopis verſicolor* of Fabricius, but clearly diſtinct from either; the thorax of the former being black; and the elytra of the latter marked at the baſe with two white ſpots: the abdomen black. The thorax of our ſpecies is black: it has no white ſpots on the elytra; and the abdomen is of a ſanguineous red colour.

CICADA FRONTALIS.

SPECIFIC CHARACTER.

Wing-caſes red. Five black ſpots on the head and thorax, and one in front between the eyes.

CICADA FRONTALIS: pallida occipite thoraceque punctis quinque nigris, fronte puncto nigro inter oculos, elytris ſanguineis.

We are unable to diſcover this ſpecies among the deſcriptions of Fabricius, and conclude it muſt be a new inſect. The ſituation of the black ſpots on the thorax, and eſpecially that on the front of the head, conſtitute the deciſive criterion of this ſpecies.



Cicada Limbata?

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CICADA LIMBATA. *var.*

WHITE-WAX INSECT.

GENERIC CHARACTER.

Roſtrum bent under the breaſt. Antennæ ſetaceous. Wings four, membranaceous, declining along the ſides of the body.

SPECIFIC CHARACTER.

Wing caſes deflexed, green, margin red. Interior caſe ſpotted with black.—*Var.* whitiſh, margined with black: a row of black ſpots on the poſterior edge.

Cicada Limbata: elytris deflexis viridibus, margine rubro, interiori baſi nigro punctato. *Fab. Spe. Inſ.* 2. *p.* 322. 3.

Cicada Limbata *var.* Aliam ſimillimam vidi, at totam ex albidam ſutura baſi nigro punctata margineque elytrorum poſtico nigro. *Fab. Spe. Inſ. ibid.*

This ſingular inſect, and the plant on which it is repreſented, have an equal claim to attention, both as objects of natural curioſity, and importance in domeſtic economy. The Larva is an elegant and beautiful creature, and China is indebted to its labours for the fine white wax ſo much eſteemed in the Eaſt Indies. The plant is not leſs intereſting, as it produces the vegetable tallow, in general uſe throughout the Chineſe empire.

The novelty of theſe productions could not fail attracting the notice of thoſe learned Europeans who were firſt permitted to reſide in China, and whoſe object was to promote ſciences and arts, as well as the chriſtian knowledge. Both the Wax-inſect, and Tallow-tree, are ſpoken of in their writings, as extraordinary and peculiar advantages to the country. Du Halde, eſpecially in his ſplendid work L'Histoire de

LA CHINE, treats largely on theſe productions, in the ſections *Cire blanche d'Inſectes* [f] *& l'arbre qui porte le ſuif.* His relations are, perhaps, too prolix, but they are evidently the reſult of attentive obſervation, and ſerve to illuſtrate the Natural Hiſtory, and economical purpoſes, of the ſubjects we are noticing: they are briefly theſe. The white wax of China is called *Tchang pe la*; it is not the ſame as the white wax of bees, but is the produce of a ſort of inſect that feeds on a tree called *Tong tçin:* theſe inſects form a kind of white greaſe which attaches to the branches of the tree, hardens, and becomes wax. It is ſcraped from the branches of the trees in autumn, melted on the fire, ſtrained; then poured into cold water, where it coagulates and forms itſelf into cakes. This wax is very white and gloſſy; it is mixed with oil and made into candles, and is much ſuperior to the wax of bees for that purpoſe.

[f] *De la Cire Blanche,*

Faite par des inſectes, et nommée Tchang pe la, c'eſt-a-dire, Cire blanche d'inſectes.

Ki *dit.* La Cire blanche dont il s'agit ici, n'eſt pas la même que la cire blanche des Abeilles. Ce ſont de petits inſectes qui la forment. Ces inſectes ſuccent le ſuc de l'eſpéce d'arbres nommée *Tong tçin*, et à la longue ils le changent en une ſorte de graiſſe blanche, qu'ils attachent aux branches de l'arbre.

Il y en a qui diſent que c'eſt la fiente de ces inſectes, qui s'attachant à l'arbre, forme cette Cire, mais ils ſe trompent. On la tire en raclant les branches dans la ſaiſon de l'Automne; on la fait fondre ſur le feu, et l'ayant paſſée, on la verſe dans l'eau froide où elle ſe fige, et ſe forme en pains. Quand on l'a rompuë, on voit dans les moreeaux briſez, des veinés comme dans la pierre blanche ou congélation nommée Pe che cao; elle est polie et brilliante: on la mêle avee de l'huile, et on en fait des chandelles. Elle eſt beaucoup ſuperiéure à eelles que font les Abeilles.

Chi tchin dit. Ce n'eſt que ſous la Dynaſtie des *Yuen* qu'on a commencé à connoître la eire formée par ces inſectes. L'uſage en eſt devenu fort eommun, ſoit dans la médeeine, ſoit pour faire des bougies. Il s'en trouve dans les Provinces de *Se tchuen*, de *Hou quang*, de *Yunnan*, de *Fo kien*, de *Tche kiang*, de *Kiang nan*, et genéralement dans tous les quartiers du Sud-Eſt. Celle qu'on ramaſſe dans les Provinees de *Se tchuen* et d'*Yunnan*, et dans les *territoires* de *Hen tcheou*, et de *Yung tcheou* eſt la meilleure.

L'arbre qui porte cette eire, a les branches, et les feüilles ſemblables à eelles du *Tong çin.* Il conſerve ſa verdure durant toutes les ſaiſons: Il pouſſe des fleurs-blanches en bouquets durant la cinquiéme Lune; il porte des fruits en bayes, gros eomme le fruit du *Kin* rampant.

Quand ils ne ſont pas mûrs, ils ſont de eouleur verte; et ils deviennent noirâtres, lorſqu'ils mûriſſent, au lieu que le fruit de *Tong çin* eſt rouge. Les inſectes que s'y attachent ſont fort petits. Quand le ſoleil parcourt les quinze derniers dégrez des Gemeaux, ils ſe répandent en grimpant ſur les braneches de l'arbre; ils en tirent le ſuc, et jettent par la bouche une certaine bave, qui s'attachant aux branches encore tendres, ſe changent en une graiſe blanche, laquelle ſe durcit, et prend la forme de eire. On diroit que e'eſt de la gelée blanehe que le froid a dureie.

Quand le ſoleil parcourt les quinze premiers dégrez du Signe de la Vierge, on fait la récolte de la Cire, en l'enlevant de deſſus les branches. Si l'on différe à la cuëillir que le Soleil ait entiérement pareouru ee Signe, il eſt difficile de la detacher, même en la raclant.

Ces inſectes ſont blancs quand ils ſont jeunes, et c'eſt alors qu'ils ſont leur eire. Quands ils deviennent vieux, ils ſont d'un châtain qui tire ſur le noir, C'eſt alors que formant de petit pelotons, ils s'attachent aux braneches dc l'arbre. Ces pelotons ſont au commencement de la groſſeur d'un grain de mil: vers l'entrée du printemps ils eommencement a groſſir et à s'étendre. Ils ſont attachez aux braneches de l'arbre en forme de grapes, et à les voir, on diroit que l'arbre eſt chargé de fruits. Quand ils

Chi tchin, a Chineſe writer, ſays, it was not till the dynaſty of *Yuen* that the wax made by theſe inſects began to be known; the cuſtom then became very general to employ it both in medicine and making candles. Its medicinal virtues are highly extolled by the Chineſe phyſicians, and particularly by *Tchi hen*. It is ſaid to be a drug abſolutely neceſſary to ſurgeons, that it makes the fleſh cloſe, ſtops bleeding, appeaſes pain, unites the nerves, rejoints the bones, and taken in pills, kills the worms that occaſion conſumptions. It is found in moſt of the ſouth-eaſt provinces of China; but the beſt is brought from *Sc tchuen* and *Yunnan*, and from the territories of *Hen tcheou*, and *Yung tcheou*.

Theſe inſects are white when young, and it is then they make their wax. When old, they are of a blackiſh cheſnut colour, and form little pelotons on the branches of trees. Theſe pelotons, at firſt, are about the ſize of a grain of millet; towards the beginning of the ſpring they increaſe in bulk and ſpread; they are attached to the branches like grapes, and at firſt ſight, the trees that bear them, appear loaded with fruit. About the beginning of May, they gather them, and having enveloped them in the leaves of *Yo* (a ſpecies of broad-leaved graſs), they are ſuſpended to the trees. At the end of June, and in July, the pelotons open, and the inſects come forth, crawl about the leaves, and form their wax.

Sir G. Staunton, in his learned work, has alſo deſcribed the Wax inſect; he found it at Turon Bay, in Cochin China, and has cauſed it to be repreſented in a vignette plate, with the following deſcription. " Among other objects of natural curioſity, accident led to the obſervation of ſome ſwarms of uncommon

ſont ſur le point de mettre bas leurs œufs, ils font leur nid de même que les chenilles. Chacun de ce nids ou pelotons contient pluſieurs centaines de petits œufs blancs.

Dans le tems que le ſoleil parcourt la ſeconde moitié du Taureau on les cüeille, et les ayant enveloppez dans des feüilles de *Yo* (eſpece de ſimple à larges feüilles;) on les ſuſpend à différens arbres. Après que le Soleil eſt ſorti du Signe de Gemaux, ces pelotons s'ouvrent, et les œufs produiſent des inſectes, qui ſortant les uns après les autres des feüilles dont ils ſont enveloppez, montent ſur l'arbre où ils font enſuite leur cire.

On doit avoir ſoin d'entretenir le deſſous de l'arbre toûjours propre, et de le garentir des fourmis qui mangent ces inſectes. On voit deux autres arbres auſquels on peut attacher les inſectes, et qui porteront également de la cire; l'un qui ſe nomme *Tien tchu*, et l'autre qui eſt un eſpéce d'arbre aquatique, dont les feüilles reſemblent aſſez à celles du Tilleul.

Qualitez et effects de cette cire.

Elle eſt d'une nature qui n'eſt ni froide ni chaude, et qui n'a aucune qualité nuiſible. Elle fait croître les chairs, elle arrête le ſang, elle appaiſe les douleurs, elle retablit les forces, elle unit les nerfs, et rejoint les os, priſe en poudre dont on forme de pillules, elles fait mourir les vers qui cauſent la phtiſie.

Tchi hen dit. La Cire blanche eſt ſous la denomination du métal: ſes eſprits corroborent, fortifient, et ſont propres à ramaſſer et a reſſerrer. C'eſt une drogue abſolument néceſſaire aux chirurgiens: elle a des effects admirables, quand on la fait entrer avec de la peau de *Ho hoang* dans la compoſition de l'onguent, qui fait renaitre et croître les chairs. *Du Halde, Vol. IV. p* 495. large Folio, 1735.

inſects buſily employed upon ſmall branches of a ſhrub, then neither in fruit or flower, but in its general habit bearing ſomewhat the appearance of a privet. Theſe inſects, each not much exceeding the ſize of the domeſtic fly, were of a curious ſtructure, having pectinated appendages riſing in a curve, bending towards the head, not unlike the form of the tail feathers of the common fowl, but in the oppoſite direction. Every part of the inſect was, in colour, of a perfect white, or at leaſt completely covered with a white powder. The particular ſtem frequented by thoſe inſects, was entirely whitened by a ſubſtance or powder of that colour, ſtrewed upon it by them. The ſubſtance or powder was ſuppoſed to form the white wax of the Eaſt. This ſubſtance is aſſerted, on the ſpot, to have the property, by a particular manipulation, of giving in certain proportions, with vegetable oil, ſuch ſolidity to the compoſition as to render the whole equally capable of being moulded into candles. The fact is aſcertained, indeed, in ſome degree, by the ſimple experiment of diſſolving one part of this wax in three parts of olive oil made hot. The whole, when cold, will coagulate into a maſs, approaching to the firmneſs of bees wax."

From the accurate deſcription and figures of the latter author, it is evident, the creature that produces the white wax of China, is an imperfect inſect, or, technically ſpeaking, the pupa of an inſect, which, in its mature ſtate, is furniſhed with wings. This is clearly the fact, for the rudiments of wings are viſible in the figures alluded to[g]. The metamorphoſe of inſects are ſo various, and their appearance ſo changed in paſſing from one ſtate to another, that the identity of any ſpecies in the larva or pupa can only be proved by actual obſervation; neither do the larva or pupa poſſeſs thoſe characteriſtic differences by which naturaliſts determine one ſpecies from another; and this conſideration deters us from deciding on the preciſe ſpecies, to which the pupa before us ſhould be referred.

Stohl, a Dutch author, has been more fortunate; he has aſcertained this identical creature to be the pupa of Cicada Limbata, and in his work on *Cimices* and *Cicades*, gives a figure of it under the title of *De Waldraagſter* (Nymphe) or *La Cigale Porte Laine*, fig. 144, together with the winged inſect at fig. 145; and it is on this authority Cicada Limbata is introduced in the annexed plate.

We are ſtrongly inclined to credit the accuracy of Stohl in this inſtance; there is much ſimilarity between the pupa and the cicada, and ſome ſtriking characteriſtics are common to both. They agree in the ſtructure of the antennæ, and proboſcis, or ſucking trunk; the abdomen of the winged inſect is alſo loaded with a fine white powder, and is furniſhed at the extremity with a tuft of down and hairs, ſimilar to that ſo eminently conſpicuous in the pupa ſtate. We have, however, obſerved the white powder, and tuft on the abdomen of Cicada lanata, and have reaſon to imagine it alſo forms a white wax, ſimilar to that of the preſent ſpecies.

[g] This may account for a paſſage in *Gordon*'s deſcription of China, where he ſays, "In the plains" of Houquang "are vaſt numbers of little *worms* that produce wax, in the ſame manner as bees do honey," if we underſtand by *worms*, inſects not arrived at maturity; for the larva of Bombyx Mori, is alſo termed a ſilk worm, though it belongs to the moth tribe when perfect.

The Cicada limbata is of a light green colour, with a red margin; that which Stohl has figured is of a pale brown, with a black margin. Theſe are the *ſpecies* and *variety* Fabricius deſcribes, for the ſpecimens he refers to, in the collection of Sir Joſeph Banks, agree preciſely with our inſects. Fabricius notes the *habitat* Africa. Stohl received the green ſpecimen from the Iſland of Ceylon; the pale ſort from Africa. The larva we have repreſented is from China; and the Cicada was brought from the Eaſt Indies, by the late Mr. Ellis.

Croton Sebiferum—Poplar-leaved Croton, or Tallow-tree.

The Tallow-tree is not the natural food of the Wax inſect, but as they mutually illuſtrate the ſame inquiry, they are repreſented in the ſame plate; and it is further preſumed, that a ſhort account of this uſeful plant, will be deemed a proper ſequel to the hiſtory of the inſect.

Du Halde, when deſcribing the Tallow-tree, ſays, " Il eſt de la hauteur d'une grande cerifier. Le fruit eſt renfermée dans un écorce qu'on appelle *Yen Kiou*, et qui s'ouvre par le milieu quand il eſt mûr, comme celle de la châtaigne. Il conſiſte en des grains blancs de la groſſeur d'un noiſette, dont la chair a les qualitez du ſuif; auſſi en fait-on des chandelles, après l'avoir fait fondre, en y mêlant ſouvent un peu d'huile ordinaire, et trempant les chandelles dans la cire qui vient ſur l'arbre dont je vais parler: il s'en forme autour du ſuif une eſpéce de croûte qui l'empêche de couler[h]. Page 18. Vol. I.

Sir G. Staunton ſpeaks nearly to the ſame effect: " From the fruit of the *Croton ſebiferum*, of Linnæus, the Chineſe obtain a kind of vegetable fat, with which they make a great proportion of their candles. This fruit, in its external appearance, bears ſome reſemblance to the berries of the ivy. As ſoon as it is ripe, the capſule opens and divides into two, or, more frequently, three diviſions, and falling off, diſcovers as many kernels, each attached by a ſeparate foot-ſtalk, and covered with a fleſhy ſubſtance of a ſnowy whiteneſs, contraſting beautifully with the leaves of the tree, which, at this ſeaſon, are of a tint between a purple and a ſcarlet. The fat, or fleſhy ſubſtance, is ſeparated from the kernels by cruſhing and boiling them in water. The candles made of this fat are firmer than thoſe of tallow, as well as free

[h] " It is of the height of a large cherry-tree; the fruit is incloſed in a ſhell, called *Yen Kiou*, which, when ripe, opens in the middle like the cheſnut. The fruit conſiſts of white kernels of the ſize of a ſmall, or hazel nut, whoſe ſubſtance has all the qualities of tallow; ſo that they make candles of it, after having melted and mixed it with a ſmall portion of common oil, and then dipping the candles into the wax before mentioned, it forms a kind of cruſt round the tallow that prevents its running, or waſting.

from all offenfive odour. They are not, however, equal to thofe of wax or fpermaceti." This author further adds, "The wax for candles, is generally the produce of infects, feeding chiefly on the privet, as is mentioned in the chapter of Cochin China. It is naturally white, and fo pure as to produce no fmoke; but is collected in fuch fmall quantities, as to be fcarce and dear. Cheap candles are alfo made of tallow, and even of greafe of too little confiftence to be ufed, without the contrivance of being coated with the firmer fubftance of the tallow-tree or of wax." *Vide Chapter on Sou-choo-foo.*

The tallow-tree is now cultivated in the Weft Indies, where it thrives well, and produces fruit, and by proper attention may hereafter become ufeful.



Nepa Grandis.

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NEPA GRANDIS.

GREAT WATER SCORPION.

GENERIC CHARACTER.

Roſtrum bent inwards. Antennæ formed like legs.

SPECIFIC CHARACTER AND SYNONYMS.

Brown. Thorax, ſcutellum, and elytra, varied with obſcure yellow marks.

NEPA GRANDIS teſtacea, ſcutello lævi, alis albis maculis veniſque flavis. *Linn. Syſt. Nat.* 2. 713. 1.
Nepa Grandis, fuſca flavo maculata. *Fab. Ent. Syſt. T.* 4. *p.* 61.
Merian Surin. tab. 56.
Die groſſe Surinamiſche, breitleibige Waſſerwanze. *Roeſ. Inſ.* 3. *tab.* 26.
Le Grand Scorpion-aquatique. *Stoll. Cimic.* 2. *tab.* 7. *fig.* 4.
De Geer Inſ. 3. 379.

M. Merian has given a plate and deſcription of this ſpecies in her work on the Inſects of Surinam. We learn from that account, that in the larva and pupa ſtate it lives in the water; that it is a voracious creature, and feeds not only on the weaker kinds of aquatic inſects, but on ſome animals much larger than itſelf. The pupa [t] is repreſented on the back of a large frog in the water, and is deſigned to pourtray the manner in which it faſtens on thoſe creatures, holds them between its ſtrong curved fore feet [u], and extracts the juices of their bodies, through its ſingularly conſtructed beak. M. Merian ſays the winged inſect came out of one of theſe creatures on the twelfth of May 1701.

Every writer on this inſect ſince M. Merian, appears indebted to her, for their account of theſe few particulars; for though all the European ſpecies of the ſame genus undergo preciſely the ſame changes in their aquatic dwellings, among decayed vegetables, &c. at the bottom of the water, and quit it only in the

[t] Theſe are *ſemi-completa:* unlike the pupa of the Lepidoptera, &c. theſe ſcarcely differ in appearance or manners of life from the complete inſect, but have only the rudiments of the wings.

[u] If theſe correſpond with the antennæ of other inſects, the Nepa has only four feet.

winged ſtate [v], we are indebted to her for the time of the appearance of this exotic ſpecies in that ſtate, as well as for a correct figure of its pupa.

Authors vary in their accounts of its native country. Linnæus, following Merian, makes it *Surinam*; Margravius, *Braſil*; and Fabricius, *America* generally. We obſerve a ſlight difference between our Chineſe ſpecimen and the figures in preceding works referred to by Fabricius; but in giving it as the Nepa Grandis of that author, we have no heſitation, having compared it with thoſe ſpecies referred to by Fabricius in the collection of the Right Hon. Sir Joſeph Banks, Bart.

NEPA RUSTICA.

EGG-CARRYING WATER SCORPION.

SPECIFIC CHARACTER
AND
SYNONYMS.

Without tail, brown. Margin of the thorax, and anterior edge of the wing caſes, pale.

NEPA RUSTICA: ecaudata fuſca thoracis elytrorumque margine antico albido. *Fab. Ent. Syſt. T.* 4. 62. 3.
Nepa Plana. *Sulz. Hiſt. Inſ. tab.* 7. *fig* 2.

Inſects in general diſcover an extraordinary degree of care, and ingenuity, in depoſiting their eggs in the moſt ſecure ſituations, or places where the infant brood, when hatched, may be provided with proper ſuſtenance. Thoſe of the aquatic kind uſually lay them in receſſes in the mud or ſand, or under looſe ſtones that lie at the bottom of the water: others, with as much care, and more ingenuity, hollow out the interior ſubſtance of the large ſtalks of water plants, and depoſit their eggs in them; or, riſing out of the water, lay them in the extreme branches of thoſe plants, to ſecure them from other aquatic depredators. The Nepa ruſtica diſplays even more ſagacity, or attachment for its eggs, than thoſe creatures; for it never leaves them. Till they are hatched, it bears them on its back, in a cluſter of an oval ſhape; theſe eggs are of an oblong form, and are faſtened by the narroweſt end to a thin film, or plate of cement, that cauſes them to adhere to the poliſhed ſurface of the wing caſes; when theſe eggs, about an hundred in number, are hatched, it caſts off the exuviæ of the cluſter, and differs no longer in general appearance from the male of the ſame ſpecies.

Our figures repreſent the ſituation of the eggs on the back, and the inſect alſo after they are caſt off. It is not commonly received with the eggs upon it. Found on the coaſt of Coromandel, as well as China.

[v] Nepa Cinerea and Linearis are Engliſh ſpecies; theſe live in the water till they have wings, when they occaſionally quit it to purſue other winged creatures —CHINA produces a ſpecies which differs very little except in ſize from N. Cinerea. *Fabricius* calls it NEPA RUBRA in his *Ent. Syſt. T.* 4. *g.* 62. *ſp.* 6. We deem a farther deſcription of it unneceſſary.

HEMIPTERA.









♀ *Vespa rustica.* ♀ *Vespa rubra.*

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HEMIPTERA.



* *Cimex Lupar.*

** *Cimex Hanbuschii.*

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CIMEX DISPAR.

OCELLATED BUG.

GENERIC CHARACTER.

Beak bent downwards. Antennæ longer than the thorax. Wings folded acroſs each other: the upper ones coriaceous from the baſe to the middle. Back flat. Thorax margined. Feet formed for running.

SPECIFIC CHARACTER AND SYNONYMS.

Eſcutcheon extends over the wings and abdomen. Thorax and eſcutcheon deep orange with ſpots of yellow, and a ſmall black point in the middle of each.

Cimex Dispar: ſcutellaris carneus thorace ſcutelloque maculis flaveſcentibus: quibuſdam puncto ocellari atro. *Fab. Spec. Inſ.* 4. *p.* 81. 7.

Cimex Ocellatus. *Thunb. Nov. Spe. tab. fig.* 72.

De Ongelyke Schildwantz. La punaiſe diſpar. *Stoll. Cimic. tab.* 37. *fig.* 260.

This curious inſect is among the number of thoſe lately brought from China. A figure of the upper ſurface is repreſented on a leaf of the *Camellia Seſanqua*, one of the vignette plates of Sir G. Staunton's Hiſtory of the late Embaſſy to that country; a coloured figure and a ſhort account of it may therefore prove acceptable to the readers of his volumes.

Profeſſor Thunberg of Upſal diſcovered this inſect in his travels in Japan, and deſcribed it among his *new ſpecies* under the name Cimex Ocellatus. Stoll, in a work recently publiſhed on Cimices, has alſo given a figure of it: he has likewiſe repreſented another ſort, which he conſiders as the female *(letter A)*; it has no black points in the yellow ſpots of the thorax and ſcutellum: he mentions the Iſle of Formoſa as the native country of his ſpecimens.

Fabricius has rejected the ſpecific name *Ocellatus*, which was given by Thunberg, and has called it Diſpar: he has added a very minute account of its characteriſtic marks, &c.

We have repreſented the inſect in a flying poſition, to diſplay the ſingular wings, that are concealed under the ſcutellum when it is at reſt. The other figure, diſtinguiſhed alſo by a ſtar, exhibits the under ſide of the inſect, which for variety and beauty of colours is not leſs intereſting than the upper ſurface.

CIMEX STOCKERUS.

BLUE BUG OF STOCKER.

GENERIC CHARACTER.

Beak bent downwards. Antennæ longer than the thorax. Wings folded acroſs each other: the upper ones coriaceous from the baſe to the middle. Back flat. Thorax margined. Feet formed for running.

SPECIFIC CHARACTER AND SYNONYMS.

Oval: green with black ſpots: body ferrugineous.

CIMEX STOCKERUS: ovatus corpore viridi: maculis nigris, abdomine ferrugineo. *Lin. Syſt. Nat.* 2. 715. 2.
Fab. Ent. Syſt. T. 4. 79. 212. 1.
LA PUNAISE BLEU DE STOCKER. *Stoll. Cimic. fig.* 15. *p.* 2.
Petiv. Gazoph. 34. *tab.* 21. *fig.* 12.

This beautiful inſect is not peculiar to China; it is found on the coaſts of Bengal and Coromandel, and in the Iſle of Java. It ſeems a very common creature in thoſe parts of the world; for we rarely receive a parcel of the inſects of thoſe countries, and from China in particular, that does not include many of them. There are ſeveral varieties of this ſpecies; ſome incline very much to green, and vary in the form of their ſpots, &c. We have a charming miniature variety of it from *Africa æquin.* about one third of the ſize of the Chineſe ſpecimens, and of a very deep blue colour. The marks both on the upper and under ſide preciſely reſemble thoſe in the annexed figures.

HEMIPTERA.













Cimex Rockerus.

Cimex aurantius.

——— cruciger.

——— Phasianus.

Reduvius bifidus.

London. Published as the Act directs by J. Donovan. March 1st 1799.

CIMEX AURANTIUS.

SPECIFIC CHARACTER.

Orange. Head, anterior margin of the thorax, and feet, black. Margin of the abdomen marked with black ſpots.

CIMEX AURANTIUS: aurantius capite thoracis margine antico abdominis maculis marginalibus pedibuſque atris. *Fab. Ent. Syſt. T.* 4. *p.* 105. 99.
Sulz. Inſ. Tab. 10. *Fig.* 10.
La Punaiſe coleur d'orange. *Stoll. Cimic.* 2. *Tab.* 6. *Fig.* 39.

This elegant inſect has been figured by Stoll and Sulzer. The four following are not, we believe, in any other work.

CIMEX CRUCIGER.

SPECIFIC CHARACTER.

Oblong: black. Thorax ſpined, and marked with four longitudinal ferruginous lines. Wing caſes black, with a ferruginous croſs.

LYGÆUS CRUCIGER: thorace acute ſpinoſo oblongus ſupra niger, thorace lineis elytris cruce ferrugineis. *Fab. Ent. Syſt.* 4. *p.* 140. 22.

From the collection of Mr. Francillon, who received it from China. Fabricius deſcribes it in his new genus *Lygæus* as a native of Brazil.

CIMEX PHASIANUS.

SPECIFIC CHARACTER.

Brown. Poſterior thighs arched, thick, armed with a ſpine. Under ſide of the abdomen gibbous at the baſe.

LYGÆUS PHASIANUS: fuſcus femoribus poſticis arcuato clavatis unidentatis abdominis baſi ſubtus gibbo. *Fab. Ent. Syſt. T.* 4. *p.* 144. 35.

This ſpecies is allied to Cimex bellicoſus, a native of Africa. Fabricius notes *Lygæus Phaſianus* from Africa alſo: our ſpecimens were brought from China by the late Mr. Ellis, ſurgeon.

CIMEX SLANBUSCHII.

SPECIFIC CHARACTER.

Red. Thorax marked with a black band. Scutellum black; and a ſpot of the ſame in the middle of the wing-caſe.

LYGÆUS SLANBUSCHII: ſanguineus thorace faſcia abbreviata, ſcutello elytris puncto aliſque atris. *Ent. Syſt. T.* 4. *p.* 155. 68.

Fabricius deſcribes this inſect from the cabinet of Schlanbuſch. It is very common in China.

CIMEX BIFIDUS.

SPECIFIC CHARACTER.

Black. A rufous bar acroſs the wing-caſes. Scutellum furniſhed with an erect ſpine, which is two-cleft or bifid at the apex.

REDUVIUS BIFIDUS: ater elytris faſcia rufa, ſcutello ſpina erecta apice bifida. *Fab. Ent. Syſt. T.* 4. *p.* 204. 40.

This very ſingular creature is a Cimex of Linnæus. It is a rare ſpecies, and has only been deſcribed by Fabricius, who places it in the new genus *Reduvius* [a].

[a] Linnæus comprehends under the general title *Cimex*, a variety of inſects, very oppoſite in appearance, though not eſſentially different; and to avoid confuſion in the arrangement of theſe diſſimilar ſpecies in the same genus, he ſeparates them into eleven diſtinct families, under the names of *Apteri*, *Scutellati*, *coleoptrati*, &c. Fabricius, throughout all his works, endeavours to divide the Linnæan Cimices, and finally, in the *Entomologia Syſtematica*, he refers them to the following genera, *Acanthia*, *Cimex*, *Coreus*, *Lygæus*, *Miris*, *Gerris*, and *Reduvius*.



Papilio Paris.

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Papilio Crino.

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PAPILIO PARIS.

GENERIC CHARACTER.

Antennæ increaſe in bulk towards the extremity, and uſually terminate in a kind of club. Wings erect, when at reſt. Fly in day time.

SPECIFIC CHARACTER.

Poſterior wings tailed, black with a large blue ſpot, and a purple eye near the anterior margin. Seven lunar marks on the under ſide.

PAPILIO PARIS: alis caudatis nigris: poſticis macula cyanea ocelloque purpureo, ſubtus lunulis ſeptem.
Linn. Syſt. Nat. 2. 745. 3.
Fab. Ent. Syſt. T. 3. *p.* 1. 1.
Cram. Inſ. 9. *tab.* 103. A. B.

The ſimile propoſed by Linnæus for the arrangement of Butterflies, is gleaned from ancient and fabulous hiſtory. The ſpecies are divided into ſections of Trojan and Greek princes, heroes, deities, nymphs, and plebeians: this allegorical ſyſtem, which is well conducted, ſeems liable to leſs objection, than the characters aſſigned to each ſection: for many ſpecies placed among the Equites, and a more conſiderable number with the Plebeii, are inconſiſtent with the eſſential criterion Linnæus has given. This arrangement has undergone ſome material alterations in the *Entomologia Syſtematica* of Fabricius; alterations, perhaps juſtified, by the comprehenſive view, its author has taken of this pleaſing branch of Entomology. The Equites, with many additions, and a few exceptions, are the ſame as thoſe in the two Linnæan ſections: Papilio Priamus, is however, removed from the head of the *Equites Trojani*, and the precedence given to Papilio Paris.

Papilio Paris is an inſect of conſiderable beauty. The general colour on the upper ſurface obſcure brown, nearly approaching black, but finely contraſted with brilliant green atoms, that are profuſely ſprinkled over it. The poſterior wings are adorned with a large blue ſpot, which derives additional luſtre from the duſky colour ſurrounding it. Another ſpecies, very ſimilar to Papilio Paris, but without this ſpot, is alſo found in China. It is the ſuppoſed female of our ſpecies. Fabricius names it Bianor, after *Cramer, pl.* 103. *fig.* 6.

PAPILIO CRINO.

SPECIFIC CHARACTER.

Wings tailed, black, entirely covered with reſplendent greeniſh, or golden ſpecks. A band of blue green acroſs the wings. Under ſide, brown, with lunar marks.

PAPILIO CRINO: alis caudatis nigris: atomis viridi aureis faſcia communi cœruleo viridi, poſticis ſubtus lunulis viridibus cœruleis cinereiſque. *Fab. Ent. Syſt. T.* 3. *p.* 5. 13.

The beauty of the preceding ſpecies claims our notice: Papilio Crino, our admiration. Its form is graceful, its colours ſplendid; and in addition to thoſe attractions, it is extremely rare. We have found an unique ſpecimen of this ſpecies in the collection of Mr. Drury, and on that authority we include it as a native of China. It has not been figured by any author. Fabricius deſcribes the ſame inſect under the ſpecific name Crino, erroneouſly giving its *habitat*, Africa.

Renealmia exaltata.

Flowered in the ſummer of the preſent year, both in the ſtove of G. Hibberts, Eſq. and at Meſſrs. Grimwoods and Wyke's, Kenſington. It is a majeſtic plant, near ſeven feet in height, and bears a fine pendent group of flowers at the ſummit.

PAPILIO AGENOR.

SPECIFIC CHARACTER.

Wings indented, black, ſanguineous-red at the baſe: poſterior wings white, with black ſpots.

Papilio Agenor: alis dentatis nigris baſi ſanguineis: poſticis diſco albo; maculis nigris.
Lin. Syſt. Nat. 2. 747. 14.
Fab. Ent. Syſt. T. 3. *p.* 13. 39.

This is one of the largeſt Chineſe Papiliones we are acquainted with. The upper and under ſurfaces ſo nearly agree, that we have conſidered a figure of the firſt unneceſſary. It is repreſented with Papilio Coon on the

Plumbago Roſea. Roſe coloured Lead-Wort.

PAPILIO PERANTHUS.

SPECIFIC CHARACTER.

Wings tailed, indented, above black, green at the baſe: beneath, pale at the ends. Seven lunar marks on the poſterior wings.

Papilio Peranthus: alis dentato caudatis nigris ſupra baſi viridibus, ſubtus apice pallidis: poſticis lunules ſeptem fulvis. *Fab. Ent. Syſt. T.* 3. *p.* 1. 44. 15.

Uncommonly ſcarce, and not hitherto figured. Fabricius has given it as a new ſpecies, *Peranthus*, and refers to a ſpecimen in the collection of the Right Hon. Sir J. Banks, Bart. That inſect came from Cochin China. We have ſeen another, which came from Canton: it is repreſented on a ſmall twig of

Arundo Bambos. Bamboo or Cane.

This well known plant is mentioned by Sir G. Staunton among the moſt uſeful productions of China.



* Papilio Ægeon. * Papilio. Ageuor.

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Papilio Peranthus.

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Papilio Laomedon !

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PAPILIO LAOMEDON.

GENERIC CHARACTER.

Antennæ clubbed at the end. Wings erect when at reſt. Fly by day.

SPECIFIC CHARACTER.

Wings indented: anterior pair brown, poſterior black: with two red ſpots on the interior angle.

Papilio Laomedon: alis dentatis: anticis fuſcis, poſticis nigris: macula duplici rufa anguli ani. *Fab. Ent. Syſt.* 3. *p.* 1. 12. 35.—*Jon. fig. pict.* 1. *tab.* 10.

We have reaſon to conclude that this ſuperb Butterfly has never been figured by any preceding author. Fabricius deſcribed it in his *Entomologiæ Syſtematica* from one of the original drawings, in the collection of Mr. Jones, and refers excluſively to that figure, in a ſynonym to his deſcription. Mr. Jones having obligingly aſſiſted us with his collection of drawings, and given us permiſſion to copy any of them, we cannot withhold enriching our volume with a figure of Papilio Laomedon.

The ſpecimen, from which the drawing was made, was in the collection of Mr. Latham.

PAPILIO COON.

GENERIC CHARACTER.

Antennæ clubbed at the end. Wings erect when at reſt. Fly by day.

SPECIFIC CHARACTER.

Anterior wings brown. Poſterior wings, and tails, black: white ſpots at the baſe; and two yellow ſpots on the interior angle.

PAPILIO COON: alis caudatis concoloribus: anticis fuſcis. Poſticis nigris baſi albo maculaque duplici anguli ani flava. *Fab. Ent. Syſt.* 3. *p.* 1. 10. 27.—*Jon. fig. pict.* 1. *tab.* 36.

This beautiful ſpecies is ſelected from the drawings of Mr. Jones; becauſe we preſume that a figure of it has never been publiſhed before.

PAPILIO EPIUS.

GENERIC CHARACTER.

Antennæ clubbed at the end. Wings erect when at reſt. Fly by day.

SPECIFIC CHARACTER.

Wings indented, brown with yellow ſpots: a red ſpot on the interior angle of the poſterior wings.

PAPILIO EPIUS: alis dentatis fuſcis flavo maculatis: poſticis macula anguli ani rufa. *Fab. Ent. Syſt.* 3. *p.* 1. 35. 102.

Papilio Epius and Papilio Demoleus are ſo ſimilar in their marks and colours, that moſt authors have confounded one ſpecies with the other. Papilio Epius is chiefly diſtinguiſhed by the red ſpot in the interior margin of the lower wings, having no blue eye-ſhaped mark above it.



Papilio Epius. Papilio Demoleus.

London. Published as the Act directs by E. Donovan Feb.ry 1.1799



* Papilio Telamon.

‡ Papilio Agamemnon.

London Published as the Act directs by E. Donovan March 1. 1798.

PAPILIO TELAMON.

TELAMON BUTTERFLY.

GENERIC CHARACTER.

Antennæ increaſe in bulk towards the extremity, and uſually terminate in a kind of club. Wings, when at reſt, erect. Fly in day time.

SPECIFIC CHARACTER.

Wings and tail yellowiſh, with ſpots and bands of black. A red ſtreak on the under wings.

PAPILIO TELAMON: alis caudatis concoloribus flaveſcentibus: maculis faſciis nigris; poſticis utrinque ſtriga ſanguinea.

The ſingular delicacy and beauty of this Papilio is not the only claim it has to the particular attention of Entomologiſts: it is clearly an undeſcribed ſpecies; and perhaps the only ſpecimen of it yet brought to Europe, is that from which our figure is copied. It was taken near Pekin, by a gentleman in the ſuite of Earl Macartney, in the late embaſſy to China; and is at this time in the poſſeſſion of Mr. Francillon of London, who has kindly permitted us to make drawings and deſcriptions of this, and every other inſect in his magnificent collection that could enhance the value of this publication.

Papilio Telamon bears a diſtant reſemblance to P. Proteſilaus, but a much ſtronger to P. Ajax: purſuing then the metaphorical method of arranging the butterflies in the Linnæan manner, we have given it the name of the father of Ajax, who was one of the diſtinguiſhed Grecian Princes at the ſiege of Troy.

PAPILIO AGAMEMNON.

AGAMEMNON BUTTERFLY.

GENERIC CHARACTER.

Antennæ increaſe in bulk toward the extremity, and uſually terminate in a kind of club. Wings, when at reſt, erect. Fly in day time.

SPECIFIC CHARACTER AND SYNONYMS.

Upper ſide: wings, and tails, black, with green ſpots. Three lunar red ſpots on each of the under wings.

PAPILIO AGAMEMNON: alis caudatis nigris viridi maculatis: poſticis ſubtus lunulis tribus rufis. *Lin. Syſt. Nat.* 2. 748. 22.
Fab. Ent. Syſt. T. 3. *p.* 1. 33. 98.
PAPILIO ÆGISTHUS. *Cram. Inſ.* 9. *tab.* 106. *fig. C. D.*

Papilio Agamemnon is found in ſeveral parts of Aſia. The under ſide is beautifully adorned with a number of bright green ſpots of various ſizes. The general colour is pale pink, diverſified with ſhades of cheſnut brown. The upper ſide is much plainer; the general colour is black, except on the ſpots, which are green, and preciſely agree in ſhape with thoſe on the under ſide.



Papilio Menelaus, var. *Papilio Rhetenor*, cram.

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PAPILIO RHETENOR.

SPECIFIC CHARACTER
AND
SYNONYMS.

Wings indented: above ſhining blue; beneath clouded, and marked with brown ſpots.

PAPILIO RHETENOR. *Cram. Inſ.* 6. *tab.* 15. *fig. A. B.*
Sulz. Hiſt. Inſ. tab. 13. *fig.* 1.
Sulz. et Roem. p. 68.

PAPILIO MENELAUS: alis dentatis: ſupra cœruleis nitidiſſimis, ſubtus nebuloſis: punctis fuſcis.
Linn. Syſt. Nat. 2. 748. 20.

Moſt naturaliſts are undetermined whether Papilio Menelaus and the ſuppoſed variety, Papilio Rhetenor, ſhould not be conſidered diſtinct ſpecies. The colour of the upper ſide is nearly the ſame in both inſects; but the under ſides are very different. The Linnæan deſcription of the male, P. Menelaus, agrees with Papilio Rhetenor, and probably he conſidered them the two ſexes of one inſect. Fabricius would certainly have made a new ſpecies of it, if he had not been of the ſame opinion. We have both inſects before us, and ſhould moſt aſſuredly make a new ſpecies of P. Rhetenor, as Cramer and Sulzer have done, if the authority of the laſt work of Fabricius were not oppoſed to us.

Papilio Menelaus is a native of South America. Sulzer's ſpecimen of Papilio Rhetenor came from China. Foreign Entomologiſts, for this and other reaſons, have conſidered them diſtinct ſpecies. The curious in inſects, ſays Cramer, call this butterfly *Le Satiné bleu oblong*, to diſtinguiſh it from P. Menelaus, or *Le Satiné bleu vulgaire*.—Cramer has alſo given a third and much ſmaller kind of theſe blue butterflies, *Pap. Adonis*, which Fabricius alſo conſiders a variety of Menelaus.

Whatever effect the artiſt can produce by a combination of the moſt brilliant colours employed in painting, he muſt ſhrink from compariſon of it with this ſplendid creature. It is impoſſible to find in any part of the animal creation colours more beautiful or changeable. Pale blue is the principal colour, but new tints meet the eye in every direction, varying from a ſilvery green to the deepeſt purple; and the whole ſurface glittering with the reſplendence of highly poliſhed metal.

Thea Laxa.—Bohea, or broad-leaved Tea.

Sir G. Staunton ſays the bohea tea is ſupplied in China from the province of Fochen: the green tea from Kiang-nan. The leaves of theſe teas vary in ſome degree in form according to the age of the plant; thoſe of the bohea are the broadeſt; Thea ſtricta has much longer leaves, they are lanceolated, and more deeply ſerrated than thoſe of the bohea. Many authors have conſidered them varieties of the ſame ſpecies. —Flowers in England in Auguſt and September.

PAPILIO OENONE.

GENERIC CHARACTER.

Antennæ clubbed at the end. Wings erect when at reſt. Fly by day.

SPECIFIC CHARACTER AND SYNONYMS.

Wings indented: yellowiſh with black margins: the baſe of the poſterior wings bright azure.

Papilio Oenone: alis denticulatis luteis margine nigris: poſticis baſis cyaneis. *Linn. Syſt. Nat.* 2. 770. 135.
Fab. Ent. Syſt. 3. *p.* 1. 280.
Kleman. Inſ. 1. *tab.* 3. *fig.* 1, 2.

Found throughout Aſia: in China is very common.



Papilio Vesta. Papilio Pasithoe.

Papilio Aruparete.

PAPILIO VESTA.

SPECIFIC CHARACTER.

Wings oblong, entire, yellow brown, margined with black ſpots.

PAPILIO VESTA: alis oblongis integerrimis flaveſcentibus: margine nigro punctato. *Fab. Ent. Syſt. T.* 3. *p.* 2. 163. 503.

Papilio Veſta is the only inſect of the *Heliconii* diviſion of Butterflies, deſcribed by Fabricius as peculiar to China, in his *Ent. Syſt.* It is a rare ſpecies, and has not been figured in any work, unleſs the *Papilio Terpſichore* of Cramer prove the ſame ſpecies. The *Papilio Veſta* of that author is a very different inſect, being the *P. Erato* of Fabricius.

PAPILIO PASITHOE.

SPECIFIC CHARACTER.

Wings oblong, entire, black. A central white ſpot on each wing, and radiated white marks near the margin. Under ſide, poſterior pair yellow: a ſpace of blood red colour on the baſe.

PAPILIO PASITHOE: alis oblongis nigris albo ſubradiatis: puncto centrali albo, poſticis ſubtus luteis baſi cruentatis. *Linn. Syſt. Nat.* 2. 755. 53.
Fab. Ent. Syſt. T. 3. *p.* 2. 179. 555.
Papilio Porſenna. *Cram. Inſ.* 4. *tab.* 43. *fig. D. E.*

Not ſo rare as the preceding ſpecies; but by no means common. The upper ſurface is uniformly black, except the radiated white marks, ſimilar, to thoſe ſeen on the under ſurface of the anterior wings; and the white central ſpot. It exhibits no trace of the red, and ſcarcely a tinge of the yellow colour ſo conſpicuous on the under ſurface.

PAPILIO HYPARETE.

SPECIFIC CHARACTER.

Wings entire, oblong, white, veined with black. Under ſide of the poſterior pair yellow, with a border of red ſpots.

PAPILIO HYPARETE: alis oblongis integerrimis albis nigro venoſis: poſticis ſubtus flavis: margine rubro maculato. *Linn. Syſt. Nat.* 2. 763. 92.

Fab. Ent. Syſt. T. 3. *p.* 2. 178. 554.

Papilio Antonöe. *Cram. Inſ.* 16. *tab.* 187. *fig. C. D.*

Papilio Eucharis. *Cram. Inſ.* 17. *tab.* 201. *fig. B. C.*

We have two ſorts of this ſpecies; one with the marginal row of red ſpots on the poſterior wings, diſpoſed in a deep border of black; the other has the red ſpots on a whitiſh ground. They are certainly the two ſexes of Papilio Hyparete. Found near Canton in China.

Sophora Japonica.—Shining-leav'd Sophora.

An elegant and valuable timber tree. Sir G. Staunton ſpeaks of it as very frequent in China. It is noticed in the liſts of plants collected in the journey between Pekin and Zhé-hol in Tartary, and in the provinces of Shan-tung and Kiang-nan, and alſo in the province of Pe-che-lee.



Papilio Glaucippe. ✕ ✕ *Papilio Sesia.*

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PAPILIO GLAUCIPPE.

SPECIFIC CHARACTER.

Wings rounded, entire, white. Anterior pair, black at the ends (and ſurrounding an orange ſpace). Under ſide greyiſh with brown waves.

PAPILIO GLAUCIPPE: alis rotundatis integerrimis albis: anticis apice nigris, poſticis ſubtus cinereis fuſco undatis. *Linn. Syſt. Nat.* 2. 762. 89.

Papilio Glaucippe is an elegant inſect: very common in China, and it is ſaid, in ſome adjacent parts of Aſia alſo. The Papilio Callirrhoe of Linnæus is considered as the female of this ſpecies: few authors deem it more than a variety (β).

PAPILIO SESIA.

SPECIFIC CHARACTER.

Wings roundiſh, above yellowiſh, black at the ends, with a large fulvous orange ſpot. Beneath, ſeven white eye-ſpots.

PAPILIO SESIA: alis rotundatis albis [b] apice (medio fulvo) nigris: poſticis ſubtus maculis ſeptem ocellaribus albis. *Fab. Ent. Syſt. T.* 3. *p.* 1. 203. 636.
Papilio Pyrene. *Linn. Syſt. Nat.* 2. 161. 86.

Fabricius, as well as Linnæus, conſiders this as an American inſect: Mr. Drury received his ſpecimens from China, and that repreſented in the annexed plate was alſo brought from the ſame country by the late Mr. Ellis.

Limodorum Tankervilliæ,

An elegant and much admired production of China: it was introduced in 1788, and named in compliment to the Earl of Tankerville.

[b] Alæ anticæ flaviſſimæ, &c. *vide general deſcription.*

PAPILIO PRYANTHE.

Antennæ increaſe in bulk towards the extremity, and uſually terminate in a kind of club. Wings, when at reſt, erect. Fly in day-time.

SPECIFIC CHARACTER.

Wings roundiſh, above white, tips black, with a black ſpot in the middle of the wings. Beneath a pale aſh colour, with waved lines and a fulvous ſpot.

PAPILIO PYRANTHE. Alis rotundatis albis puncto apiceque nigris, ſubtus cinereo undatis: puncto fulvo. *Lin. Syſt. Nat.* 2. 763. 98.

This is a rare ſpecies, and has not been figured by any author.

PAPILIO PHILEA.

SPECIFIC CHARACTER.

Wings entire, ſomewhat angulated, yellow. A large orange ſpot on the anterior pair. Margin of the poſterior pair orange.

PAPILIO PHILEA: alis integerrimis angulatis flavis: anticis macula poſticis limbo luteis. *Linn. Syſt. Nat.* 2. 764. 104.

Roeſel has given a figure of this beautiful butterfly in the fourth volume of the *Inſecten Beluſtigung*, and calls it *die indianiſche Goldborte*; Linnæus alſo notes it as an Indian ſpecies. Our ſpecimen was received from China by the late Mr. Keate: it is repreſented with the preceding ſpecies on the

Melaſtoma Chinenſis,

A plant recently introduced into this country.



Papilio Pyranthe. Papilio Philea

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Papilio Jacintha. Papilio Antiochus.

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Papilio Gambricius.

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PAPILIO JACINTHA.

SPECIFIC CHARACTER.

Wings brown, ſcalloped. A row of white ſpots on the anterior pair. Ends of the poſterior pair white.

PAPILIO JACINTHA: alis repando dentatis fuſcis: anticis ſtriga punctorum alborum, poſticis apice albis. *Fab. Ent. Syſt. T.* 3. *p.* 1. 60. 187.

This curious butterfly was found in the province of Pe-tche-lee, in China, by the gentleman who diſcovered the elegant Papilio, *Telamon*, near Pekin; and has otherwiſe, by his attention to entomology, added ſome intereſting ſpecies to our catalogue of Chineſe inſects. P. Jacintha is repreſented with P. Antiochus, on a leaf of the

Urtica Nivea. White Nettle [e].

PAPILIO GAMBRISIUS.

SPECIFIC CHARACTER.

Wings indented. Above black, with ſpots and ſtreaks of green; and a band of white tranſparent ſpots on the anterior pair.

PAPILIO GAMBRISIUS: alis dentatis ſupra nigris viridi maculatis ſtriatiſque: anticis faſcia maculari nivea. *Fab. Ent. Syſt. T.* 3. *p.* 2. 264.

A ſpecimen of this very rare Papilio, was taken in one of the ſmall iſlands on the eaſtern coaſt of China, and is in the poſſeſſion of Mr. Francillon. Sir J. Banks, Bart. has a ſpecimen of it from another part of the Eaſt Indies.

[e] Sir G. Staunton ſpeaks of a cloth that the Chineſe manufacture from the fibres of a dead nettle. Query, Is this the ſpecies employed for that purpoſe? no other is noticed by that author in the liſts of plants collected in China.

The nettle is of general uſe in Ruſſian Tartary alſo; the *Kuriles*, and other Siberian tribes, make cloth, cordage, thread, &c. of it. *Gordon*, &c.

PAPILIO LUBENTINA.

SPECIFIC CHARACTER.

Wings dentated, dark, greeniſh, with ſpots of white, black, and red.

PAPILIO LUBENTINA: alis dentatis obſcure vireſcentibus albo nigro rufoque maculatis. *Fab. Ent. Syſt. T.* 3. *p.* 2. 121. 370.

PAPILIO LUBENTINA, is figured only in the works of Cramer: his ſpecimen is not preciſely like ours, but agrees in all the eſſential peculiarities, and is unqueſtionably the ſame ſpecies. The ſemitranſparent ſpots on the anterior wings are much larger in Cramer's figure than in the inſect before us.

PAPILIO LEUCOTHOË.

SPECIFIC CHARACTER.

Wings dentated, above brown, with three white bands acroſs. Beneath yellow brown, with three ſimilar white bands, and black characters.

PAPILIO LEUCOTHOË: alis dentatis, ſupra fuſcis: faſciis tribus albis: ſubtus luteis: faſciis tribus albis nigro notatis. *Linn. Syſt. Nat.* 2. 780. 179.

This pretty inſect is very common about Canton, in China.

PAPILIO POLYXENA.

SPECIFIC CHARACTER.

Wings dentated: above brown, with three white bands acroſs. Beneath yellowiſh orange, with three white bands: a row of black ſpots on the lower one.

PAPILIO POLYXENA: alis dentatis, ſupra fuſcis: ſubtus luteis: faſciis utrinque tribus albis, poſteriore ſubtus nigro-punctata.

This ſeems to have been confounded with the preceding ſpecies both by Linnæus and Fabricius. Linnæus firſt deſcribes it as the female, and afterwards as a variety of it; but it certainly is a very diſtinct ſpecies.



× *Papilio Venone.* ×× *Papilio Almana.*

××× *Papilio Lubentina: var*

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Papilio Jairus.

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PAPILIO JAIRUS.

JAIRUS BUTTERFLY.

GENERIC CHARACTER.

Antennæ increaſe in bulk towards the extremity, and uſually terminate in a kind of club. Wings, when at reſt, erect. Fly in day time.

SPECIFIC CHARACTER AND SYNONYMS.

Wings entire, brown: middle of the lower wings white; on the upper ſurface of each, near the poſterior margin, an eye-ſhaped ſpot; on the under ſurface two.

PAPILIO JAIRUS: F. alis integerrimis fuſcis: poſticis diſco albo ſupra ocello ſubtus duobus.—*Fab. Ent. Syſt. T.* 3. *pl.* 1. *p.* 54. 168.

PAPILIO JAIRUS. *Cram Pap. tab.* 6. *fig. A. B.—tab.* 185. *fig. A. B. C.*
Clerk Icon. tab. 29. *fig.* 3.

A ſpecimen of this extremely rare Butterfly is contained in the collection of Dr. Hunter; a fragment in the Britiſh Muſeum; and one in fine preſervation in the collection of Mr. Francillon. Except theſe, and the ſpecimens from which the figures in the annexed plate are copied, we have never ſeen it in any cabinet whatever.

It has been figured only by two authors, Clerk in his *Icones inſectorum rariorum*, and Cramer in his *Papillons exotique*. The figures of Clerk and Cramer do not ſtrictly agree: we obſerve thoſe of the firſt much lighter coloured, and the white ſpace on the upper wings conſiderably larger than in any of the figures in Cramer's plates[r].

Fabricius ſays it is a native of the Eaſt Indies. One ſpecimen figured by Cramer was brought from the iſle of Amboyna. It ſeems therefore, not peculiar, like ſome inſects, to China.

r The copy of this exceedingly ſcarce work of Clerk, which we had an opportunity of comparing with Cramer's works, is in the invaluable library of the Right Hon. Sir J. Banks, Bart.

PAPILIO ANTIOCHUS.

ANTIOCHUS BUTTERFLY.

GENERIC CHARACTER.

Antennæ increaſe in bulk towards the extremities, and uſually terminate in a kind of club. Wings, when at reſt, erect. Fly in day time.

SPECIFIC CHARACTER AND SYNONYMS.

Wings entire, roundiſh, black: a broad band of bright yellow brown continued acroſs the upper ſurface of the wings.

PAPILIO ANTIOCHUS: P. F. alis integerrimis rotundatis nigris: ſupra faſcia communi fulva. *Linn. Mant.* 1. 537.—*Fab. Ent. Syſt. T.* 3. *p.* 2.—44. 134.

PAPILIO EUPALEMON. *Cram. Pap.* 12. *tab.* 143. *fig. B. C.*
Drury Inſ. 3. *tab.* 7. *fig.* 3. 4.
Aubent. Miſcell. tab. 68. *fig.* 3. 4.

Papilio Antiochus is very rare in European cabinets of inſects. The ſpecimen figured by Drury came from the Brazils, and Cramer's from Surinam. Fabricius deſcribes it as a native of China. The inſect figured in the collection of drawings of Mr. Jones of Chelſea, was a native of China, as well as the ſpecimen in our collection.



Papilio Bernardus.

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Papilio Erymanthis. Papilio Erythia.

Pithyusa. Iduarthoe.

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PAPILIO BERNARDUS.

FESTOON ORANGE BUTTERFLY.

SPECIFIC CHARACTER.

Orange colour. A broad bar of yellow acroſs the anterior pair of wings: ends black. Poſterior pair with two tails, and a feſtoon of black ſpots, with an eye in the centre of each.

PAPILIO BERNARDUS: alis caudatis fulvis: anticis apice atris; faſcia flava, poſticis ſtriga punctorum ocellatorum. *Fab. Ent. Syſt.* 2. *p.* 1. 71. 223

This uncommonly rare Chineſe butterfly has certainly never been figured in any preceding work. It will alſo be probably new to the collectors of exotic inſects, in this country at leaſt. Fabricius deſcribed it only from the accurate drawings of Mr. Jones, as appears by the reference added to the deſcription in his *Entomologia Syſtematica.*

Camellia Japonica.—Japan Roſe.

A native of Japan and China. It bears bloſſoms from January to May. This is a lofty and magnificent plant, riſing to the height of ſeveral feet: there is a variety of it with double flowers, perfectly white; and another in which the flowers are variegated with white and red.

PAPILIO ERYMANTHIS.

YELLOW JAGGED-BAR BUTTERFLY.

SPECIFIC CHARACTER.

Wings indented, brown: a broad bar of yellowiſh colour acroſs the anterior pair; exterior ends black. Lunar marks on the poſterior pair, and a row of eye-ſhaped ſpots beneath.

PAPILIO ERYMANTHIS: alis dentatis fulvis: anticis apice nigris; faſcia flava, poſticis ſupra lunulis, ſubtus ſtriga punctorum ocellatorum. *Fab. Ent. Syſt.* 2. *part* 1. *p.* 139. 427.

It is the rarity, and not the beauty of this butterfly, which has induced us to add it to our ſelection. We apprehend it is far from common in China, being very ſeldom ſent to Europe among the inſects of that country.

PAPILIO ORYTHIA.

VARIABLE BLUE AND BROWN BUTTERFLY.

SPECIFIC CHARACTER
AND
SYNONYMS.

Wings indented, brown. On the upper ſide two eyes in each, and another on the under ſide of the anterior wings.

PAPILIO ORYTHIA: alis dentatis fuſcis: omnibus ſupra ocellis duobus, anticis ſubtus unico. *Lin. Syſt. Nat.* 2. 770. 130.
Fab. Syſt. Ent. 2. *part* 1. *p.* 91. 284.

The varieties of Papilio Orythia are numerous, and ſeem to differ according to climate of the countries of which they are natives. It is common in North America, Jamaica, India, &c. The variety from North America is almoſt wholly brown, and thoſe from Jamaica have leſs blue in the diſk of the lower wings, than thoſe from China.

Papilio Clelia of Cramer, which is found on the coaſt of Guinea, has been ſuppoſed a variety of Papilio Orythia. Fabricius, in the *Entomologia Syſtematica,* has made it a diſtinct ſpecies. It greatly reſembles P. Orythia, but has no more blue colour on the poſterior wings than is concentrated in a large ſpot near the baſe.

PAPILIO ALMANA.

DOUBLE-EYE ANGULATED BUTTERFLY.

SPECIFIC CHARACTER
AND
SYNONYMS.

Wings angulated, brown, varied with black marks; a large eye with two pupils in the middle, on the poſterior wings. Beneath, entirely brown.

PAPILIO ALMANA: alis angulatis fulvis nigro maculatis: poſticis ocello majori; pupilla gemina, omnibus ſubtus brunneis. *Linn. Syſt. Nat.* 2. 769.
Fab. Ent. Syſt. 3. *p.* 1. 278.

The angulated form of the wings of this butterfly gives it a remarkable appearance. The eyes on the wings ſomewhat reſemble thoſe of the Peacock butterfly, to which, in ſome other reſpects, it bears no diſtant ſimilitude. It is common in China; Fabricius gives its *habitat* Aſia.



Hesperia Thymnus. Hesperia Maecenas.

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LEPIDOPTERA.

PAPILIO MÆCENAS.

GENERIC CHARACTER.

Antennæ increaſe in bulk towards the extremity, and uſually terminate in a kind of club. Wings, when at reſt, erect. Fly in day-time.

Plebeii rurales. *Linn.* [c]

SPECIFIC CHARACTER.

Upper ſide black, diſk blue. Two tails to each poſterior wing. Under ſide clouded with brown.

Hesperia Mæcenas: alis bicaudatis atris: diſco cœruleo, ſubtus brunneo nebuloſis. *Fab. Ent. Syſt. T.* 1. *p. l.* 271. 45.

We are indebted for this rarity to T. Marſham, Eſq. It is deſcribed by Fabricius from an original drawing [d], and has not been figured by any author.

[c] *Plebeii rurales*, alis maculis obſcurioribus. Spots on the wings obſcure, or not tranſparent.—The *plebeii* is the laſt family of Butterflies in the Linnæan ſyſtem, and is divided into two ſections, *rurales* and *urbicolæ*. Fabricius removes this family from the *Papiliones* (Butterflies) to a new genus *Heſperia*. This genus is however divided after the Linnæan method into two ſections, *rurales* and *urbicolæ*, and contain nearly the whole of the Linnæan *plebeii*, in addition to the later diſcovered ſpecies. The eſſential character of the *Heſperia* is, *Palpi* two, compreſſed, hairy, apex cylindrical, naked. Antennæ clubbed, oblong, often crooked at the extremity.

[d] *Jon. fig. pict.* 6. *tab.* 3. *fig.* 2.

PAPILIO ATYMNUS.

SPECIFIC CHARACTER.

Wings bright brown. Anterior pair black at the tips. Poſterior pair furniſhed with tails.

HESPERIA ATYMNUS: alis caudatis fulvis: anticis apice nigris.
Fab. Ent. Syſt. 1. *p.* 1. 283. 88.

This is alſo a ſcarce ſpecies. Our ſpecimen is from the collection of the late Ducheſs Dowager of Portland, who procured it from China. Another ſpecimen in the cabinet of Sir J. Banks, Bart. is from Siam.

Hemerocallis Japonica.

Brought from China by Mr. Slater, and flowered in July 1798 in the green-houſe of G. Hibberts, Eſq. Clapham.



Sphinx Nechus. Sphinx Polymena.

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SPHINX NECHUS.

SPECIFIC CHARACTER.

Wings entire: anterior pair greeniſh, with teſtaceous marks. Poſterior pair black; a band of yellow ſpots acroſs the wings, and a ſingle ſpot near the baſe.

SPHINX NECHUS: alis integris: anticis viridibus; ſtriga teſtacea, poſticis nigris: maculis baſeos faſciaque flavis. *Fab. Ent. Syſt.* 3. *p.* 1. 377. 63.

The number of Chineſe ſpecies of this genus, already deſcribed, is very limited: our preſent inſect is the largeſt of them; but, as this is inferior in ſize to ſeveral kinds found in Europe, we conceive there muſt remain many larger ſpecies of the genus unknown to collectors of foreign inſects, and yet very common in China. In the latter part of Sir G. Staunton's work, that author mentions the larva of a *Sphinx Moth* which furniſh an article for the table of the Chineſe. We regret that the indefinite expreſſion cannot aſſiſt us to determine the ſpecies, and ſcarcely the genus, of the inſect alluded to [e].

The ſpecimen figured in the annexed plate, is in the collection of Mr. Francillon, who received it from China. A ſmall variety of the ſame ſpecies is found in North America, and figured by Cramer. Sphinx Batus and Sphinx Gnoma are nearly allied to this inſect, particularly the former; both are found in different parts of the Eaſt Indies.

[e] European naturaliſts are entirely ignorant of the Chineſe inſects in the ſtate of larva and pupa, if we except a few ſpecies of the Cimices, Cicada, and ſome altogether unintereſting inſects, that have been accidentally brought among others from that country. Hence it muſt remain undetermined whether they correſpond in form with thoſe of other parts of the world. It is, however, highly probable, from their great affinity to thoſe, in the perfect ſtate, that in the ſtate of larva they may alſo agree. The extenſive collection of the larva of ſphinges made by Mr. Abbot in North America affords no ſingularly conſtructed animal diſtinct from thoſe found in Europe; they vary indeed in their colours, but preſerve uniformly the characters found on the ſame genus in other countries. We noticed among the drawings of the late Mr. Bradſhaw the figure of a Chineſe ſphinx, apparently *S. Hylas*, together with a larva ſimilar to that of the Sphinx Stellatarum: it was green, and, like all the known larva of the genus, (except the *Adſcitæ* diviſion) was perfectly free from hairs: it was alſo furniſhed with a horn at the poſterior part of the body.

SPHINX POLYMENA.

SPECIFIC CHARACTER.

Wings black, with three yellow ſpots on the anterior pair, and two on the poſterior pair. Abdomen belted with two bright red bands.

Sphinx Polymena: *Lin. Syſt. Nat.* 806. 40.
Zygæna Polymena: nigra alis maculis luteis anticarum tribus poſticarum duobus. Abdomine cingulis duobus coccineis. *Fab. Ent. Syſt.* 3. *p.* 1. 396. 34.

We ſuſpect this beautiful creature is ſcarce in China; at leaſt it is very rarely found among the inſects brought from that country. It is figured on the plate with the

Roſa ſemperflorens—Ever-blowing China Roſe.

A plant lately introduced from China, but thrives well in this climate, and bears a beautiful deep red flower, throughout moſt part of the ſummer ſeaſon.

SPHINX HYLAS.

SPECIFIC CHARACTER.

Wings tranſparent. Abdomen green, with a purple belt round the middle. Apex bearded.

Sphinx Hylas: *Linn. Mant.* 1. 539.
Seſia Hylas: alis feneſtratis, abdomine barbato viridi: cingulo purpureo. *Fab. Ent. Syſt.* 3. *p.* 1. 379. 3.

The Sphinges with tranſparent wings may be ſeparated from the others with much propriety: Fabricius includes them in his new genus Seſia; but that genus is not formed excluſively of ſuch inſects, his eſſential characters being taken from the ſtructure of the *palpi, tongue,* and *antennæ.* The Sphinx fuciformis found in England ſomewhat reſembles this Chineſe ſpecies.



Sphinx Kylas. Sphinx Thallo.

Sphinx rufivollis. Sphinx bifasciata.

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SPHINX THALLO.

SPECIFIC CHARACTER

AND

SYNONYMS.

Wings oblong, entire black, two bars of white on the anterior wings, and a yellow ſpace on the poſterior pair.

PAPILIO THALLO: alis oblongis integerrimis nigris: anticis faſciis duabus, poſticis unica flavis. *Linn. Syſt. Nat.* 2. 756. 62.

Papilio Thallo: *Fab. Ent. Syſt.* 3. *p.* 1. 173. 537.

Sphinx pectinicornis: *Linn. Syſt. Nat.* 2. 807. 44?

Fab. Ent. Syſt. 3. *p.* 1. 399. 44?

It is altogether perplexing, and myſterious to us, that Fabricius, throughout all his works, and even in his laſt enlarged and corrected ſyſtematic arrangement, has given a Papilio Thallo in the *Heliconii* diviſion of that genus, when it is clear no ſuch Papilio has exiſtence. Linnæus has, undoubtedly, ſo named an inſect figured in a plate of Edwards's birds, tab. 226, with a reference to that work; yet it is certain the inſect there figured is not a butterfly, but a lepidopterous Inſect, to which antennæ of dubious ſtructure have been added, to perfect its appearance [f]. No later author has figured the ſame ſpecies; and ſpecimens of it being extremely ſcarce, it is probable Fabricius has been unable to detect the error. In admitting this, however, we muſt neceſſarily notice the ſynonyms of *Sphinx pectinicornis*, where he alſo quotes the ſame figure in the works of Edwards. Thus we find, throughout all the editions of the Fabrician Syſtem, a *Papilio Thallo* and *Sphinx pectinicornis* formed of the ſolitary figure of one inſect. Cramer has finally increaſed the ambiguity of its genera, by making an inſect of cloſe affinity, perhaps the ſame ſpecies, a Phalæna. *Vide P. Tiberina.*

[f] Coincident obſervations on perfect ſpecimens of ſeveral inſects, nearly allied to this ſpecies, tend to convince us, that the artiſt had only a mutilated ſpecimen to copy from. Indeed, though the antennæ in his figure are terminated in a kind of capitulum, like that of the butterflies, the filaments are ſomewhat jagged, as if intended to appear ſlightly pectinated. Cramer notices the very cloſe affinity between his inſect, *P. Tiberina*, and that in Edwards's work; which, he obſerves, differs neither in form nor colour, but only in having clubbed antennæ: thoſe parts of his inſect being pectinated or feathered. — "Mr. Edwards a repréſenté un Papillon, qui ne differe de celui-ci, ni pour la coleur, ni pour la deſſein, mais qui a des antennes à boutons. Celui que nous donnons ici eſt gravé d'apres une Phalêne qui a des antennes plumacées," &c. *Cram.* C. D. Pl. 32.

Edwards calls this inſect the little black and white Butcher fly, becauſe it is figured on a plate with the black and white Butcher bird.

With ſpecimens of both the inſects figured by Edwards and Cramer before us, we cannot heſitate to conſider them Sphinges of the *Adſcitæ* [g] family, and of the *Zygæna* of Fabricius. In removing our inſect to the ſphinx genus, we have retained the ſpecific name *Thallo*, as more likely to denote the ſpecies than any newly adopted name. The inſect figured by Cramer does not preciſely agree with Edwards's figure. In the firſt, the diſk of the poſterior wings are yellowiſh, with a deep border of black: in the other, the yellow occupies only a ſpace near the baſe, and forms a ſemi-lunar mark near the anterior margin of thoſe wings. We ſuſpect, with Cramer, that they are but the two ſexes of one ſpecies. Cramer ſays both his ſpecimens came from China, from whence our inſects were alſo received.

SPHINX RUFICOLLIS.

SPECIFIC CHARACTER.

Wings entire; black purple, a ſemicircular yellowiſh band communicating acroſs all the wings; and two ſpots of the ſame colour near the apex. Collar reddiſh.

SPHINX RUFICOLLIS: alis integerrimis nigro-purpureſcentibus faſcia communi maculiſque duabus flavis, thorace antice brunneo.

This and the following ſpecies are undoubted nondeſcripts: both ſpecimens are in the collection of Mr. Francillon, who received them from China.

SPHINX BIFASCIATA.

SPECIFIC CHARACTER.

Wings fulvous or orange, a black bar acroſs the middle of the anterior wings: tips black.

SPHINX BIFASCIATA: alis fulvis faſcia apiceque nigris.

Sphinx Hylas, Thallo, ruficollis, and the elegant little ſpecies Sphinx bifaſciata, are repreſented on the plate with the

Thuja Orientalis.—China Abor-vitæ Tree,

An ornamental evergreen, much eſteemed by the Chineſe, and very frequently repreſented in their landſcapes. Sir G. Staunton remarks in the account of the journey from Pekin to Canton, that great quantities of this plant grew to a prodigious height in the valley in which ſtands the city of Yen-choo-foo.

g The Adſcitæ differ from the other ſphinges, in their general appearance, but have all the characters aſſigned to that genus.



Phalæna Atlas.

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LEPIDOPTERA.

PHALÆNA ATLAS.

GENERIC CHARACTER.

Antennæ ſetaceous. Wings, in general deflexed when at reſt. Fly by night.

Bombyx.

SPECIFIC CHARACTER.

Wings much falcated or hooked. Colour, yellow brown, varied. A tranſparent ſpot in the middle of each wing; with a ſmaller one next that on the anterior pair.

PHALÆNA ATLAS: alis patentibis falcatis luteo variis: macula feneſtrata anticis ſeſquialtera.
Lin. Syſt. Nat. T. 2. 808. 1.
Fab. Ent. Syſt. T. 3. *p.* 1. 407. 1.

The Phalænæ are a tribe of inſects remarkable for the neatneſs and ſimplicity of their colours. Their elegancies conſiſt in the infinite variety, and delicacy of intermingled tints: the contraſt of ſpots, ſpecklings, and lineations, which conſtitute the minutiæ of inſect beauty. Some ſpecies are to be excepted in this remark; the larger kinds are often gaudy, and the ſmalleſt exhibit a diſplay of the richeſt colours, fancifully diſpoſed, and moſt elegantly diverſified.

The European ſpecies are numerous, and pretty well aſcertained: thoſe of remote countries remain in great obſcurity. The ſpecies inhabiting China are almoſt unknown°; for the lateſt ſyſtematic writer deſcribes not more than twenty ſpecies in all the cabinets in Europe. From this ſcanty number a few are ſelected to illuſtrate the genus, and if theſe appear deficient in point of intereſt or variety, it may ſtimulate others to collect new ſpecies, whenever an opportunity occurs. The Phalæna tribe, not only of China, but every country, except of Europe, are a *deſideratum* of entomology. In Europe the number of this tribe exceeds that of any other: on the contrary, the extra-European ſpecies are comparatively the moſt inconſiderable of our acquiſitions. The Papiliones, or Butterflies, are a ſhowy and lively race: they ſport in the open fields in day, and attract the traveller's curioſity; hence our cabinets abound with them. But the moth, infinitely more numerous, and not leſs pleaſing, is ſeldom ſeen; in the gloomineſs of its diſpo-

° *Fab. Ent. Syſt.* Theſe are chiefly deſcribed from inſects in the collection of *Monſon Londini*, of which no figures are extant, and the collection unknown.

ſitions, it ſeeks the obſcurity of the foreſt in the day, and only ventures on the wing when the ſun is down. In Europe we viſit its nocturnal haunts without difficulty or dread; but in hotter climates theſe are oftentimes impenetrable, or the lurking places of ferocious animals; and few will expoſe themſelves to their attacks, to increaſe the catalogue of exotic Phalænæ P.

Phalæna Atlas is the firſt ſpecies we have to notice. It is the largeſt of the moth tribe q, and is, indeed, a gigantic creature. The ſpecies is common, but not peculiar to China, being found in other parts of Aſia, and in America. The influence of climate is eaſily traced in the *varieties* from different countries; that from Surinam is the largeſt, and of the deepeſt colours. The Chineſe kind is the next in ſize; the colours incline to orange, and the anterior wings are more falcated or hooked at the ends. We have two other Aſiatic *varieties* ſtill ſmaller, with the wings extremely falcated.

The larva of Phalæna Atlas is figured by *M. Merian,* in the *Inſecta Surinamenſia,* plate 52: it is about four inches in length, green, with a yellow ſtripe diſpoſed longitudinally. Upon each ſegment are four diſtinct round tubercles of a coral-like orange colour, which are ſurrounded with very delicate hairs. The pupa is large, and is incloſed in a web of an ochre colour. The ſilk of this web is of a ſtrong texture, and it has been imagined, if woven, would be ſuperior in durability to that of the common ſilk worm. *Seba* has alſo repreſented the larva at fig. 1. plate 57. vol. 4. *Theſaurus Naturæ.* It is nearly ſix inches in length, and bulky in proportion; the Phalæna is alſo larger than that figured by Merian, which is a

P The far greater number of Phalænæ can only be taken in the woods at night. This is termed *mothing* by collectors. The moths begin to ſtir about twilight, and when almoſt dark, commence their flight. The collector is furniſhed with a large gauze folding-net, in which the inſects are caught indiſcriminately, for it is impoſſible to diſtinguiſh one ſpecies from another, and often is ſo dark, that the object itſelf can barely be diſcerned. Different ſpecies have their favourite haunts, ſome the lanes, and ſkirts of woods, but many of them prefer the open breaks in the moſt retired places. As it would be unſafe, or impoſſible, to penetrate the woods in many countries, it it better to collect the larva, or caterpillar, for theſe may be found on the trees in day-time, and if kept in little gauze cages, and carefully fed, will change into chryſalis, and produce the fly. This is certainly tedious, and few travellers will divert their attention from more important obſervations; but were they to appropriate their leiſure to this branch of ſcience, they would materially improve entomology. Mr. Abbot has inveſtigated a ſmall diſtrict of Georgia, in North America, in this manner, and our cabinet is indebted to his labours for ſeveral hundred ſpecies, altogether new in Europe. The reader may eſtimate the importance of theſe diſcoveries, by referring to the two expenſive volumes of North American Inſects, lately publiſhed; and reflecting, that the originals of all the ſpecies included in that work, are but a ſmall ſelection from thoſe he has furniſhed us with. Viewing theſe as the reſult of one man's reſearch, in an inconſiderable portion of North America, what a variety of new and ſplendid kinds would be the reward of thoſe, who ſhould explore the more genial regions of Aſia, Africa, and South America, with equal diligence and information!

We have hazarded an aſſertion which may ſeem inadmiſſible, that the Phalænæ are infinitely more numerous than the Papiliones, or any other tribe of inſects. Not that we poſſeſs more; but becauſe, in every country that has been inveſtigated, experience juſtifies ſuch opinion. For inſtance, in Great Britain, we have only ſixty Papiliones, and by mere accident two or three local ſpecies have lately been added; of the Phalænæ we have more than 900. The ſame comparative proportion is obſerved throughout the countries of the European continent; and it is ſingularly analogous, that our opinion is confirmed, by the recent diſcoveries of Mr. Abbot in America alſo.

q When Linnæus deſcribed it, few of the very large ſpecies of Phalæna were known. We have two ſpecies from the interior of Africa, that are larger than the Chineſe *var.* of Atlas, and ſeveral others ſcarcely inferior in magnitude.

ſmall ſpecimen of the Surinam kind. According to Merian, there are three broods of this inſect in a year; they are very common, and feed on the orange trees. Linnæus ſays, they adhere ſo tenaciouſly to the leaves, that they can ſcarcely be taken off[r].

The common ſilk worm, or Phalæna Mori, is of this family, and merits obſervation as a native of China. The art of weaving its threads into ſilk is of the earlieſt date. The diſcovery is attributed to the *Seres*, a people of the Eaſt Indies, ſuppoſed the Chineſe[s]. In the days of Solomon, we are told, a woman named Pamphilia, of the Iſland of Co, was ſkilled in the art of making cloth, of the ſilk brought from the country of the Seres. The moſt ancient of the Chineſe writers aſcribe the invention to one of the women of the emperor *Hoang ti*, named *Si ling*, and in honour *Yuen fei*[t]. When Rome degenerated into voluptuouſneſs, Perſia, its dependency, furniſhed this article of luxury; but it is ſuppoſed they were indebted to the Chineſe for it, and being ſupplied only in ſmall quantities, it was conſequently dear. In Rome it was ſo ſcarce, as to be worn only by perſons of the firſt diſtinction.

The Chineſe hiſtorians affirm, that the diſcovery was conſidered at firſt of ſuch importance, that all the women in the palace of the emperor were engaged in rearing the inſect, and weaving its ſilk. In after times, the ſilk of China was a principal article of commerce, but latterly its value has been materially leſſened, by the culture and fabrication of ſilk in other countries. As the Chineſe know little of the uſe of linen, the ſilk is a ſtaple article of their own conſumption. The jeſuit miſſionaries mention ſeveral ſorts of it, in uſe among the Chineſe; ſome admired for beauty, and others for durability. It is generally ſuppoſed theſe are not merely the effect of different manufacture, but are the produce of diſtinct inſects[u]. Sir G. Staunton ſpeaks of the culture of ſilk worms in China, but only of the common ſort. It will gratify curioſity, if not prove advantageous, ſhould future obſervers aſcertain what kind of

[r] Larva verticillata verrucis piloſis nec folliculos grandes, tenaces, vix extricandos. *Linn. Syſt. Nat.*

[s] Velleraque ut foliis depectant tenuia Seres. *Virg. Georg.* II. 122.

[t] Du Halde, *Des Soyeries.* Les plus anciens écrivans de cet Empire, en attribuent la découverte à une des femmes de l'Empereur *Hoang ti*, nommée *Si ling*, et furnommée par honneur *Yuen fei.*

[u] M. Merian ſays, in the deſcription of the Surinam variety of Phalæna Atlas: "Telam ducunt fortem, quare bonum fore fericum rata, iſtius aliquam collegi copiam & in Belgium tranſmiſi, ubi eadem optima judicata eſt: ut itaque, ſi quis Erucas iſtas congregandi laborem non detrectaverit, et bonæ notæ bombycem, et maximum hinc lucrum ſibi comparare poſſet." The thread of which this coccon's web is compoſed, is ſo ſtrong, that it has been imagined it would make good ſilk. I have brought ſome of it into Holland, which has been eſteemed ſuch. So that if any one would take the trouble to collect a number of theſe caterpillars, they would be found good ſilk worms, and produce great profit. Merian.—Abbot informs us, the Moths of the Emperor tribe, in general, are called Silk worms by the people of Georgia, and in the deſcription of Phalæna cecropia, is ſtill more explicit: for he ſays, "the caterpillar ſpins on a twig. The outſide web is coarſe, the inner covered with ſilk, like a ſilk worm's coccon. It is ſaid this ſilk has been carded, ſpun, and made into ſtockings, and that it will waſh like linen." *Abbot's Inſ. by Dr. J. E. Smith.*—Theſe inſects are all of the ſame natural order, P. Cecropia is rather ſmaller, but very ſimilar to P. Atlas, and this information at leaſt corroborates the aſſertion of Merian.

An opinion, that the Chineſe rear ſeveral kinds of inſects for the ſake of their ſilk, has long been prevalent. Dr. Lettſom propoſes a query on this ſubject, "Which ſpecies of moth or butterfly is it, the caterpillar of which, in China, affords that ſtrong grey kind of ſilk, and how is it manufactured or wore? How are theſe ſilk worms or caterpillars preſerved, fed, and managed? The introduction of ſuch a new ſilk into England would be a uſeful acquiſition, and redeem entomology from the

inſects the Chineſe appropriate to making ſilk, and whether P. Atlas is of the number, as has been conjectured.

cenſure it is now branded with, of being a mere curioſity, void of any real utility *." If *Leſſer* and *Lyonet* are to be relied on, The *Theologie des Inſectes* anſwers this query. " At this day there are to be found in China, in the province of Canton, ſilk worms in a wild ſtate, which, without any care being taken of them, make in the woods a kind of ſilk which the inhabitants afterwards gather from the trees. It is grey, without luſtre, and is uſed to make a very thick and ſtrong cloth, named there Kien Tcheon. It may be waſhed like linen cloth, and does not ſtain." A Gentleman reſident in the Eaſt Indies, ſpeaks of a large Phalæna, producing ſilk in that country. " We have a beautiful ſilk worm north-eaſt of Bengal, that feeds on the Ricinus, whence I call it Phalæna Ricini: it is ſea green, with ſoft ſpines, very large, and voracious, and ſpins a coarſe, but ſtrong and uſeful ſilk. The moth is of great ſize, with elegant dark plumage.—Is it known to European Naturaliſts?"—*In a collection of papers publiſhed by* Dr. ANDERSON, *in* MADRAS, 1788, 1789.—M. Le Bon, Reaumur, Roeſel, and ſeveral others, have attempted to weave the ſilk of ſpiders, as a ſubſtitute for that of ſilk worms, but their experiments rather amuſe, and point out the ingenuity of the propoſers, than promiſe to be uſeful; for after many trials, it appears that the ſilk of ſpiders would be inferior in luſtre, and far more expenſive than that of ſilk worms. Sir G. Staunton alludes to theſe experiments in his deſcription of the Java foreſts. " In ſome open ſpots were found webs of ſpiders, woven with threads of ſo ſtrong a texture, as not eaſily to be divided without a cutting inſtrument; they ſeemed to render feaſible the idea of him, who, in the ſouthern provinces of Europe, propoſed a manufacture from ſpiders' threads; which is ſo ridiculous to the eyes of thoſe who have only viewed the flimſy webs ſuch inſects ſpin in England."—Many other ſubſtances of a ſoft texture have alſo been wrought into a variety of trifling articles, as gloves, ſtockings, &c. of the fibres of Aſbeſtos earth, or mountain flax, beard of the large *Pinna* ſhell, &c. &c.

* Naturaliſt and Traveller's Companion, 1774.



Phalena militaris. *Phalena fulvia.*

London Published as the Act directs by E. Donovan Oct.1st 1798



* *Phalæna Bubo.* *Phalæna zonaria.* *

** *Phalæna pygaria.*

London. Published as the Act directs by E. Donovan. May 1.1799.

PHALÆNA MILITARIS.

SPECIFIC CHARACTER.

Wings ſpread. Yellow, with violet ſpots: ends of the wings violet, with white ſpots.

PHALÆNA MILITARIS: alis patulis concoloribus luteis: apice maculiſque violaceis, anticis extus albo maculatis. *Linn. Syſt. Nat.* 2. 811. 12.
Fab. Ent. Syſt. 3. *p.* 1. 416. 33.

This, and the following ſpecies, are ſcarce. Mr. Drury informs us, he never procured but a ſingle ſpecimen of Phalæna lectrix, in the courſe of thirty years collecting inſects.

PHALÆNA LECTRIX.

SPECIFIC CHARACTER.

Wings incumbent, black: anterior pair ſpotted with blue, yellow, and white; poſterior pair ſpotted with red and white.

PHALÆNA LECTRIX: alis incumbentibus nigris: maculis cœruleis flavis albiſque, poſticis rubro alboque maculatis. *Linn. Syſt. Nat.* 2. 334. 83.
Fab. Ent. Syſt. Sp. 1. *p.* 475. 212.

PHALÆNA BUBO.

Noctua.

SPECIFIC CHARACTER.

Wings ſpread, dentated brown, with black indulations. A large bright brown eye in the middle of the anterior wings.

PHALÆNA BUBO: alis patulis dentatis fuſcis nigro undulatis: anticis macula magna ocellari brunnea.
Fab. Ent. Syſt. T. 3. *p.* 2. 9. 4.
Phalæna Macrops. Linn. Syſt. Nat. 3. 225.

This is the largeſt of the Chineſe *Noctuæ*; ſome very ſimilar ſpecies, but without the orange eye, and of a ſmaller ſize, are peculiar to China.

PHALÆNA PAGARIA.

Geometræ.

SPECIFIC CHARACTER.

Antennæ pectinated. Wings roundiſh, blue black, with a row of white ſpots next the tips of the wings.

PHALÆNA PAGARIA: pectinicornis alis rotundatis cœruleo nigris: faſcia macularia apicis alba.
Fab. Ent. Syſt. T. 3. p. 2. 153. 85.

PHALÆNA ZONARIA.

SPECIFIC CHARACTER.

Antennæ ſetaceous. Wings green, deeply bordered with pale red. A green ſpot on the exterior margin of each wing.

PHALÆNA ZONARIA: alis viridibus margine poſteriore lato rufeſcente, ſingulis maculâ marginali viridi.

Not deſcribed in any preceding work.

NEUROPTERA.



* *Aeshna clavata.*

** *Libellula indica.*

*** *Libellula 6 maculata.*

London Published as the Act directs by E.Donovan July 2nd 1798.

LIBELLULA CLAVATA.

GENERIC CHARACTER.

Mouth furniſhed with more than two jaws. Antennæ like a briſtle or hair, very ſhort. Tail of the male armed with a pair of forceps.

SPECIFIC CHARACTER.

Abdomen clubbed at the end, gibbous or thick at the baſe. Body variegated with green, and deep brown ſtripes.

AESHNA CLAVATA: abdomine clavato baſi gibbo, corpore fuſco viridique variegato. *Fab. Spec. Inſ.* 1. *p.* 526. 4.—*Ent. Syſt.* 2. 385. 4.

This inſect is deſcribed by Fabricius, and in conformity with his new ſyſtem, is termed *Aeſhna clavata* [c]. We reject his generic definition, becauſe it clearly belongs to the Linnæan Libellulæ. Libellula clavata muſt be placed with the European L. grandis and forcipata.—It is ſcarce, and has never been figured before.

LIBELLULA INDICA.

SPECIFIC CHARACTER.

Wings yellow, barred with brown, changeable to bright purple. Apex of the anterior pair white. Poſterior pair blue at the baſe.

LIBELLULA INDICA: alis flavo fuſcoque variis apice albis: poſticis macula baſeos cyanea. *Fab. Ent. Syſt. T.* 2. 376. 9.

Libellula variegata. *Linn. Syſt.* Libellula hiſtrio. *Mant. Inſ.*

Another ſpecies of Libellulæ, peculiar to India, and found in China, greatly reſembles this inſect: it is probably a variety of it.

[c] Fabricius divides theſe two families of Linnæan Libellulæ into three diſtinct genera; the firſt retains the Linnæan name, the ſecond and third are called Aeſhna and Agrion. Their moſt eſſential characters are taken from the form and ſituation of the mouth, and therefore require a deep magnifier to determine them with accuracy. We have examined thoſe parts in the greater number of the ſpecies Fabricius has deſcribed, and find his characters agree, except in one inſtance; but, which alone proves the impracticability of adopting the whole of his ſyſtem: he deſcribes *Libellula Chinenſis*, and refers to the only figure that has been given of it, in one of the plates of Edwards's Natural Hiſtory of Birds, 1745. Had he ever ſeen and examined this rare ſpecies, he muſt have referred it to his genus *Agrion*, each of the lips being bifid, or two-cleft, as in Libellula virgo and puella,—the eſſential characteriſtic of the genus Agrion; for the mouths of the Libellulæ of Fabricius differ altogether in ſtructure, and are not notched in the ſlighteſt degree, as Libellula clavata, ferruginea, 6 maculata, and the European ſpecies Libellula depreſſa, will ſufficiently illuſtrate.

LIBELLULA 6 MACULATA.

SPECIFIC CHARACTER.

Three black marks on the anterior ribs of the firſt pair of wings, marginal ſpot white. Poſterior wings clouded with yellow.

LIBELLULA 6 MACULATA: alis maculis tribus coſtalibus atris: ultima ſtigmate niveo, poſticis faſciis flaveſcentibus. *Fab. Ent. Syſt. T.* 2. *p.* 381. 37.

Theſe delicate inſects appear to be male and female; they are almoſt a miniature reſemblance of the two ſexes of Libellula depreſſa, found in Europe; one having the abdomen yellow, and the other blue.

LIBELLULA CHINENSIS.

SPECIFIC CHARACTER.

Anterior wings browniſh, without ſpots. Poſterior pair green. Apex brown.

LIBELLULA CHINENSIS: alis anticis teſtaceo obſoletis, poſticis viridibus apice fuſcis. *Linn. Syſt. Nat.* 2. 904. 15.

The only two ſpecimens of this ſpecies we are acquainted with, were in the collection of the late Ducheſs of Portland; one of thoſe is now in the poſſeſſion of Mr. Francillon.

LIBELLULA FERRUGINEA.

SPECIFIC CHARACTER.

Wings clear, white, yellow at the baſe. Body red.

LIBELLULA FERRUGINEA: alis albis baſi flavis, corpore rubro. *Fab. Ent. Syſt. T.* 2. *p.* 380. 33.

Very common in China.

LIBELLULA FULVIA.

SPECIFIC CHARACTER.

Wings yellowiſh, anterior margins teſtaceous, with a pellucid ſpot in the middle. Marginal ſpot near the end, brown.

LIBELLULA FULVIA: alis flaveſcentibus marginibus anticis teſtaceis, macula media ſubpellucida: ſtigmate ad apicem fuſca.

Libellula fulvia. *Drury Inſ. tab.* 46. *fig.*

This inſect has been figured, but not deſcribed before. We apprehend Fabricius conſidered it a variety of ſome other ſpecies, not having noticed it.







* *Libellula Chinensis.* ** *Libellula ferruginea.*

** *Libellula fulvia.*

London. Published as the Act directs by E.Donovan Nov.1.1798.



Aranea Maculata.

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ARANEA MACULATA.

SPOTTED SPIDER.

GENERIC CHARACTER.

Eyes eight. Mouth armed with two hooks or crotchets. Palpi two, conſiſt of ſeveral joints, headed by the genitalia of the males in that ſex. Anus contains teats for ſpinning.

SPECIFIC CHARACTER.

Thorax covered with a ſattin-like pile, of a ſilvery colour. Abdomen cylindrical. Legs long and black.

* * * * * * * * * Oculis. . . : : . .

ARANEA MACULATA: thorace holoſericeo argenteo, abdomine cylindrico, pedibus longiſſimis atris.
Fab. Ent. Syſt. t. 2. *p.* 425. *ſp.* 66.

This remarkable creature is peculiar to ſome parts of the Chineſe empire. It is not the largeſt of the genus, known; yet it is of ſufficient magnitude to excite terror and diſguſt. To an European, who has ſeen only the indigenous ſpiders of his own country, a ſpecies five or ſix inches in length, and nearly the ſame in breadth, muſt appear a frightful creature: Aranea Maculata ſometimes exceeds that ſize; but it has not the forbidding aſpect of moſt inſects of the ſame genus. The legs are unuſually long, and the body ſlender. In its general appearance, it reſembles ſome kinds of the *Phalangiæ* that are known in England by the vulgar name *Harveſt-men*, being generally ſeen about that time of the year.

It has been obſerved, that nature oftentimes adorns the moſt deformed and loathſome of her creatures in the richeſt diſplay of colours; and this is eſpecially noticed in many ſorts of ſnakes, toads, lizards, &c. Spiders ſeem alſo of this deſcription: to a form the moſt hideous we frequently find united a brilliance of colours, and elegance of marking, that is ſcarcely excelled by any of the butterfly tribe,—the moſt beautiful of all lepidopterous inſects. Our preſent ſubject is a ſtriking proof of the latter part of this obſervation. The three figures in our plate of Aranea Maculata exhibit a front and a profile view of the inſect, together with the front of the head at the third figure. The head is furniſhed with two very ſtrong black mandibles, each terminated in an extremely acute point. The fore part of the thorax, which is wholly of a fine ſilky appearance, and the colour of ſilver, bending over the mandibles in the form of an arch, or circular head-piece, give it the reſemblance of a black head with a crown of ſilver on the brow. This appearance is heightened in no ſmall degree by three rugged prominences, one in the centre, and another on each ſide, on the upper part; and by the minute black eyes, which, like thoſe of moſt ſpiders, ſparkle with the luſtre

of ſmall gems. Theſe eyes are eight in number, four are placed immediately in the front of the ſilver-coloured circular front piece, and on each ſide are two more at equal diſtances, but rather in oblique poſitions.

The body is really beautiful, the chief colour is deep brown, ſtrongly tinged with bright purple; a broad ſtripe of orange colour paſſes down the abdomen from the thorax to the apex: the whole is elegantly marked with a variety of cream-coloured lines and ſpots interſecting each other. Very little hair is found on any part of this ſpider except on the thorax, which being rubbed off, diſcovers a hard teſtaceous black ſubſtance beneath.

Fabricius is the only author who has deſcribed this inſect: it has never been figured in any work whatever, as appears by the lateſt works of Fabricius, and our own obſervation. It is not always the moſt deciſive method to determine the ſpecies from a conciſe deſcription; but this is ſometimes unavoidable, and in the preſent inſtance the deſcription given by Fabricius accords in every reſpect with our ſpecimen. The only inſect with which it could poſſibly be confounded is Aranea Pilipes, which alſo has never been figured; it differs however from Aranea Maculata in the very hairy clothing of the legs, and it has alſo two ſilver ſtripes down the back: a ſtriking ſpecific diſtinction to ſeparate it from our inſect. It is alſo a native of the Eaſt Indies, but not of China, that we are informed.



Canicr. Mantis.

London Published as the Act directs by P. Donovan June 1st 1806.

CANCER MANTIS.

SPECIFIC CHARACTER,

AND

SYNONYMS.

Hand claws without tarſi, compreſſed, hooked, ſerrated, with teeth. Body angulated. Tail ſerrated, and armed with ſpines.

CANCER MANTIS: macrourus articularis, manibus adactylis compreſſis falcatis ſerrato-dentatis. *Linn. Syſt. Nat.* 633. 54.—edit. 10.

Squilla Mantis: manibus adactylis compreſſis falcatis, ſerrato dentatis, corpore ſubangulato, cauda ſerrato ſpinoſa. *Fab. Ent. Syſt. T.* 3. *p.* 511.

The Linnæan *Cancri* are numerous, and include many ſpecies not leſs ſingular in appearance than the extraordinary creature before us. Indeed, ſome ſpecies are ſo extremely different from the reſt, both in ſtructure and manners of life, that we cannot heſitate in concluding the Linnæan character of the genus defective and indefinite. This may be obſerved in ſeveral of the ſpecies Linnæus himſelf deſcribed, and throughout a more extenſive number of thoſe diſcovered ſince the time of that author. It is evident Linnæus could never reconcile the ſubdiviſions of the two principal families; the *Brachyuri* and *Macrouri*; or crabs with ſhort and long tails; and later naturaliſts have ventured, with propriety, to alter this part of his arrangement. The *Pagarus*, *Hippa*, *Scyllaris*, *Aſtacus*, *Squilla*, and *Gammarus*, are ſo many new genera, formed of the Linnæan tribes of *Cancri* in the laſt Syſtem of Fabricius. The genus, to which Fabricius retains the name *Cancer*, is diſtinguiſhed from the reſt, by having four ſhort filiform antennæ; with the extreme articulation bifid, as we obſerve in the preceding ſpecies. This author follows Degeer in deſcribing the Cancer Mantis, and alters the generic name to Squilla: he obſerves, that this genus is entirely diſtinct from the *Cancri*, and we are of the ſame opinion, but adhere to the Linnæan genera, becauſe the ſpecies, *Mantis*, was deſcribed by Linnæus, and it may be improper therefore to remove it, to a new genus, in any partial ſurvey of his ſyſtem. The Cancer Mantis is not peculiar to China.

CANCER MAMMILLARIS.

GENERIC CHARACTER.

Feet eight, claws two. Eyes two, diſtant from each other, and placed on a kind of footſtalk; moveable. Palpi two large, furniſhed with claws. Tail articulated, and without ſting.

SPECIFIC CHARACTER.

Thorax nearly oval, ſpinous. Three ſpines on each ſide, beak ſhort, with three teeth.

CANCER MAMMILLARIS: thorace ovato aculeato utrinque triſpinoſo, roſtro brevi tridentato. *Fab. Ent. Syſt. T.* 2. *p.* 465. 91.

In the Entomologia Syſtematica of Fabricius we find a ſpecies of *Cancri* deſcribed, that ſeems to agree with our ſpecimen. The ſpecific character aſſigned by that author is however leſs ſatisfactory than the general deſcription he has added. The two red ſpots are very characteriſtic.

Fabricius met with this creature in the cabinet of *Spengler,* and notes its *habitat* China. It is worthy of remark, that this is the only ſpecies of the *Cancer* genus, Fabricius mentions as a native of that country.



Cancer mammillaris.

London Published as the Act directs by E. Donovan April [illegible]



Scolopendra Morsitans.

London Published as the Act directs by E. Donovan March 1.1798.

APTERA.

SCOLOPENDRA MORSITANS.

VENOMOUS, OR BITING CENTIPEDE.

GENERIC CHARACTER.

As many feet on each ſide, as ſegments of the body. Body depreſſed. Antennæ ſetaceous. Palpi 2, jointed.

SPECIFIC CHARACTER
AND
SYNONYMS.

Feet 20 on each ſide, eyes eight.

SCOLOPENDRA MORSITANS: pedibus utrinque 20, oculis octo. *Linn. Syſt. Nat.* 2. 1068. 5.—*Fab. Ent. Syſt.* 2. 390. 6.

SCOLOPENDRA MORDANTE,—Scolopendra pedibus utrinque 21, poſterioribus ſpinoſis. *De Geer. Inſ.* 7. 563. 1. *tab.* 43. *fig.* 1.

Seba. Muſ. 1. *tab.* 81. *fig.* 3, 4.

——— 2. *tab.* 25. *fig.* 3, 4.

Cateſb. Car. 3. 2. *tab.* 2.

Sulz. Hiſt. Inſ. tab. 30. *fig.* 14.

Bradl. Nat. tab. 25. *fig.* 4.

Travellers agree that the temperate parts of Aſia would be a terreſtrial paradiſe, were it not for the multitude of troubleſome inſects and reptiles with which they are infeſted. In a well cultivated country, like China, many of theſe creatures can ſcarcely find ſhelter; but ſuch as harbour in the walls or furniture of human dwellings are as abundant in that, as any other country that lies within or near the tropics. Amongſt the latter, none produce more terrible effects than the Centipede, whoſe poiſon is as venomous as that of the ſcorpion, which alſo is a native of China.

Sir G. Staunton mentions a remarkable circumſtance that occurred during the late embaſſy to China. The ambaſſador and his ſuite were accommodated in a temple near the ſuburbs of Tong-choo-foo. " In ſome of the apartments the prieſts had ſuffered ſcorpions and ſcolopendras to harbour through neglect. Theſe noiſome creatures were known only by deſcription to ſome of the gentlemen in the embaſſy, who had not viſited the ſouthern parts of Europe: the ſight of ſuch, for the firſt time, excited a degree of horror in their minds; and it ſeemed to them to be a ſufficient objection to the country, that it produced theſe animals." Sir George however adds, that no accident happened in that inſtance.—The ſpecies of Scolopendra he alludes to, is probably *Morſitans*, which is common in many parts of the world, but is particularly found of a frightful ſize, and in vaſt abundance, in the two Indies.

APTERA.

Many authors have deſcribed this creature. In the voluminous works of Seba we find ſeveral ſpecimens of it from different countries, differing materially in ſize, and ſome trifling particulars, but all poſſeſſing the diſtinguiſhing characters of Scolopendra Morſitans. The largeſt of theſe exceed our figure in magnitude, being near fourteen inches in length: this he calls *Millepeda major* ex nova Hiſpania. His figure of *Millepeda Africanæ* is about the ſize of our Chineſe ſpecimen. He has alſo a third and fourth figure, *Millepeda Orientalis* and *Millepeda Celonica, mas:* the latter is the ſame length as our figure, but the body is very narrow. Millepeda Orientalis is alſo the ſame length, but the body is very broad. Some of theſe inſects are not four inches in length.

Authors agree that they vary exceedingly in ſize[a] and colour. De Geer deſcribes them to be ſometimes deep reddiſh brown; at others the colour of yellow ochre. The figure in Cateſby's Natural Hiſtory of Carolina is light brown; we have ſpecimens of a livid yellow, and have ſeen others ſtrongly tinged with red.

The laſt pair of legs are conſiderably larger than the others, and are armed with ſmall black ſpines. The legs terminate in very ſharp hooks or nails of a ſhining black colour. All the other legs are alſo furniſhed with a ſmaller nail of the ſame ſhape and colour.

M. Gronovius ſays that all its feet are very venemous; but the moſt formidable of its weapons are the two ſharp, hooked inſtruments that are placed under the mouth, and with which it deſtroys its prey.

Lewenhoeck having examined theſe inſtruments with a microſcope, he found a ſmall opening at the extremity of each, and a channel from them into the body of the creature. Through this channel he ſuppoſes the Scolopendra emits the poiſonous fluid into the wound it makes with the hooked inſtrument. That author further remarks, that he has ſeen a liquor on that part of living ſcolopendras. A figure of theſe inſtruments on the under ſide of the head, is repreſented in one of the diſſections in our plate.

The ſame author, wiſhing to aſcertain the influence of the poiſon of Scolopendra morſitans, placed a large fly within its reach. The Scolopendra at firſt took it between a pair of its middle feet, then paſſed it from one pair of feet to the next, till the fly was brought under the ſharp pointed inſtrument or crotchets at the head, which it plunged into the fly, and it died inſtantly. Notwithſtanding this experiment, De Geer, Cateſby, and other authors, aſſert, that its bite ſeldom proves fatal to larger animals; but all agree that its poiſon is as dangerous as that of the ſcorpion.

This Scolopendra has eight eyes: they are very ſmall; four are placed on each ſide of the head near the antennæ. In the diſſections a figure is given to exhibit the manner in which the four eyes are placed on one ſide.

[a] Theſe creatures differ from moſt inſects in their manner of growth, inſomuch that it it impoſſible to aſcertain when they are of their full ſize. The ſegments of the body increaſe as they advance in age, which circumſtance renders it difficult oftentimes to determine the ſpecies, without a minute examination of its other characters.

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